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# ***JPRS Report***

# **Soviet Union**

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***Economic Affairs***

2 SEPTEMBER 1987

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## PRICE INCENTIVES IN PROMOTING TECHNICAL PROGRESS EXAMINED

Moscow STANDARTY I KACHESTVO in Russian No 5, May 87 pp 73-78

[Article by A.G. Gogoberidze, doctor of economic sciences, and A.Z. Zangvil, NIItsen: "The Role of Incentive Supplements and Deductions Applied to Wholesale Prices in Stimulating Scientific-Technical Progress"]

[Text] In the light of the decisions of the 27th CPSU Congress improving planned pricing presupposes an examination of the present methodological foundations and practice of setting prices in the context of their interrelationship with other economic levers. Particular attention is being paid to a further strengthening of the effect of the price mechanism toward speeding up product renewal and toward the product's higher technical level and quality.

The problems of the interrelationship between a price and quality of a product of machinebuilding have been under active study over the last 15 years. This has made it possible to analyze the gradual development of the forms and methods of price incentives and to discover the basic shortcomings and directions for their improvement.

The role of prices in stimulating scientific-technical progress has been strengthened in a closer interrelationship with the changes taking place in the system of state produce certification and with improvement of the planning and development of new technology and the organization of its production. Provision was made for continuity in incentives for product renewal and for improvement of the product's technical level and quality. A rating in the superior-quality category was a necessary condition for applying the incentive supplements to wholesale prices of new products, and the period of validity of the state Quality Emblem in turn predetermined to a considerable degree the duration of the price incentive. Deductions from wholesale prices were conditional upon certification of the product in the second-quality category (at the present time in the first category) and was also related to planning the withdrawal of products from production.

An analysis of the 10-year practice of applying the incentive supplements in the branches of machinebuilding shows that the impact of prices on cost-accounting (khozraschetnyy) activity of developers of new technology and of manufacturing enterprises has been noticeably strengthened. The area of

application of the incentive supplements has been expanded. These supplements are included in the wholesale prices of a larger share of new products. There has been a rise in the level of the supplements themselves awarded to particular products and also in the share of products with a higher level of supplements. At the same time there has been a considerable increase in the total number of incentive supplements to wholesale prices of new products and products bearing the state Quality Emblem, which has had an impact on the growth of additional profit obtained by the various branches and of the corresponding transfers to economic incentive funds.

In 1985 almost 60 percent of new products, including half of the new machines, equipment, instruments, and devices had incentive supplements to wholesale prices as against 11 percent in 1976. But the process of bringing new products up to the highest technical level has varied in intensity from one branch to another within machinebuilding. For example, in the setting of wholesale prices of new products in Mintyazhmash, Minlegpishchemash, Minkhimmash, and Minelektrotekhprom the share of products with the incentive supplements ranged from 62 to 86 percent, while in other branches the values of this indicator are below 50 percent. At the same time there has been a lengthening of the validity of the incentive supplements, and this was reflected in the fact that the number of supplements whose validity was extended has more than doubled over 1979.

At the same time the state Quality Emblem is not being awarded to all the new products recommended for certification in the superior category. Of the total number of incentive supplements awarded for the period 1980-1985 to new products of machinebuilding, the validity of the supplements was extended for 84.4 percent of new products because the state Quality Emblem was awarded. For most ministries the share of new products recommended for certification in the superior-quality category and receiving the state Quality Emblem varies between 70 and 90 percent, but in Minselkhoz mash and Minzhiv mash the share of these products is only slightly more than 20 percent. A further expansion of the area of application of incentive supplements is bound up with planning a rapid leap upward in the technical level and quality of the products of machinebuilding in the 12th Five-Year Plan. Pursuant to the decree adopted by the CPSU Central Committee and USSR Council of Ministers, entitled "On Measures To Radically Improve Product Quality," newly developed products must meet the requirements of the superior-quality category. By the end of the 5-year planning period the relative share of new products meeting those requirements is for all practical purposes to be brought up to 100 percent.

Performance of measures to increase the maximum size of incentive supplements to 15-30 percent of the wholesale price has been manifested in the rise of their average level both in the various branches of machinebuilding and also in machinebuilding as a whole. But substantial fluctuations are also observed from branch to branch. Whereas in Minenergomash, Minlegpishchemash, and Mintyazhmash the level of incentive supplements awarded in 1985 represented between 10 and 30 percent of the wholesale price for 65-70 percent of new machines and equipment, for a majority of the products of a number of ministries the supplements are set at a level of less than 10 percent of the wholesale price.

For the period 1977-1985 the sum total of incentive supplements to wholesale prices of machinebuilding products being produced grew 6.8-fold. At the same time the growth of the total amount of incentive supplements was 183 million rubles in 1984, which is 15 million rubles less than in the 2 previous years, and in 1985 it was more than 213 million rubles. The additional profit from the sale of products in the superior quality category represented a share of 7 percent of the total amount of profit of 11 machinebuilding ministries in 1985, as against 1.6 percent in 1977, while in Mintyazhmash, Minkhimmash, and Minenergomash the figures were 11.6, 11.9, and 17.0 percent, respectively. As is well known, as much as 70 percent of the additional profit goes to economic incentive funds for developers and creators of new technology--NII's, KB's, and manufacturing enterprises. It should moreover be taken into account that because the incentive supplements have been in effect for several years the overall level of the supplements in effect is lower than those being awarded at the present time.

In spite of the constructive developments, by no means all the potential embodied in the present price incentive mechanism for product renewal by means of incentive supplements has been realized. An analysis conducted by USSR Goskomsen has revealed a number of causes. The principal one among them is the absence of a radical improvement of the technical-and-economic parameters of a substantial portion of the new technology classified in the superior-quality category and put into production. Cases are not infrequent in which new and modernized machines and equipment do not determine technical progress in the branches and are produced in negligible amounts. At the same time the principles of interaction of pricing, the setting of standards and technical-and-economic substantiations of new technology are in need of further improvement.

The size of the incentive supplement depends on a number of factors: economic efficiency, the degree of newness, and the new product's priority. The size of the economic benefit has had decisive importance in determining the size of the supplement over a lengthy period of time. Ensuring the interrelationship between the size of the economic benefit and the price incentive continues to be the methodological principle that is the point of departure. At the same time improvement of the economic mechanism and the management of scientific-technical progress has advanced new problems in supplemental stimulation of the priority lines of development of new technology. Additional constraints have now been introduced in setting the size of incentive supplements: the maximum size of the supplement and the share of the economic benefit taken into account for purposes of incentives are differentiated as a function of the character of the changes in the product of machinebuilding in the course of its improvement and the priority lines of development.

A necessary condition for application of incentive supplements at a level up to 30 percent of the wholesale prices is the transition to manufacturing new generations of machines, equipment, and devices. In its productivity and reliability the new technology must exceed the analog being produced by at least 1.5-2.0-fold, and its specific energy intensiveness and materials intensiveness, along with the labor intensiveness of its operation, must be at the level of progressive scientific-technical attainments.



The maximum level of the supplements is also envisaged for products whose production is based on developments which have been duly recognized as discoveries or inventions, for automatic manipulators with programmed control, for complete processing lines, installations, and units, for flexible production systems, and for products which represent import substitutions.

On other new and modernized products the maximum size of the supplements may not exceed 15 percent of the wholesale price. These restrictions are combined with regulating the level of incentive supplements on the basis of the economic efficiency of the new technology and the shared distribution of the economic benefit.

It should be noted that improvement of the technology of price incentives has been accompanied by an increase in the fixed share of the economic benefit redistributed to the manufacturer (from 30 to 50 percent of the economic benefit in 1969 to 50-70 percent at the present time). But the proportions established in distribution of the economic benefit cannot always be observed for particular products of machinebuilding. The interaction of the two criteria in determining the size of the incentive involves a substantial variation of the economic benefit relative to the level of wholesale prices. Guaranteeing that the incentive supplement gives an equal or predominant share to the economic benefit is possible in those cases when the economic benefit is less than the wholesale price. For certain products of machinebuilding whose economic benefit exceeds the wholesale price, the share of the economic benefit taken into account may depart substantially from the fixed values depending on the extent by which the benefit exceeds the price. For example, incentive supplements on four models of electric furnaces awarded in 1984 at 30 percent of the wholesale prices represented between 4 and 19 percent of the economic benefit, which exceeded the wholesale prices of the individual models by a factor ranging from 1.5 to 7.1. That is why the proposals that have been expressed on use of only one criterion (the economic benefit) in substantiating the proportion of the incentive could result in an unregulated rise of prices and a substantial detachment of prices from the socially necessary costs. At the same time a substantially larger role is being given to correct determination of the fixed portion of the economic benefit which goes as an incentive to the producer and which must not be fixed arbitrarily, but must reflect patterns in ratios between benefit and prices in the various stages of improvement of the product being produced.

It is especially important to reconcile requirements as to the technical level and quality of the program in connection with the setting of standards, in calculations of the economic efficiency of new technology, and in the setting of prices. Assurance of uniform principles in evaluating products must be manifested in adherence to a single methodological approach in selecting analogs for comparison of the various versions and for making decisions on putting a new product into production; in expansion of the group of indicators reflecting the use values of products; in using in calculations of economic efficiency only those indicators which have been set down in the normative and technical documentation or planning documentation and which have been confirmed by consumers on the basis of test results.

It is widely believed that the size of the economic benefit influences only the size of the incentive supplement to the price of new technology. Meanwhile the economic appraisal of indicators of the technical level and quality of a product is used predominantly in substantiating the level of prices. All changes in determination of the economic efficiency of new technology whether they are related to the general methodology or particular features of the economic appraisal of the use characteristics of particular products are manifested in changes of the maximum permissible level of the price and possible proportion of the incentive. An analogous influence is exerted by distortions in calculations of the economic benefit, which are committed quite often by manufacturers and consumers of new technology.

Research conducted in branches on use of new technology shows that deviations of the actual efficiency from the efficiency calculated occur mainly because of failure to attain the rated productivity, because of exceeding the current operating costs of machines and equipment, because the products are more labor-intensive than was planned, because the technology does not allow the projected elimination of job slots, and so on. Shortcomings in calculations of economic efficiency are also related to the absence or insufficient substantiation in normative and technological documentation for various machines and equipment of the quality indicators reflecting, say, reliability, actual productivity, ergonomic indicators, etc.

The absence of a single body in the country that would plan, record, and reconcile the indicators of efficiency and also the consumer's indifference about the correctness and substantiation of the calculation of the economic benefit (since the present procedure for planning and financing outlays for expanded reproduction is based on automatically recording in cost estimates of capital construction the value of the new product, including the supplement to the price) detract from the effectiveness of economic stimulation of raising the technical level and quality of the product and create conditions for a hiking up of prices. At the present time only pricing authorities perform the role of public monitor of the size of the economic benefit, but this job requires joint efforts of USSR Gosstandart, GKNT, and industrial ministries. It would seem that the conversion of enterprises to self-financing and expansion of the practice of applying contract prices should promote a strengthening of the responsibility of both manufacturers and also consumers for the efficiency of new technology.

Deductions from wholesale prices of obsolescent products which are to be withdrawn from production or modernized must become another important lever for stimulating scientific-technical progress. Their introduction was first envisaged back in 1974. Later, in connection with decisions to improve the economic mechanism, the operation of deductions from wholesale prices was bound up with certification of the product in the second-quality category. But over the last 10 years they have not enjoyed expansion as a form of economic pressure on product manufacturers. It is well known that departmental interests have been one of the principal causes of the situation. Manufacturing branches concerned with periodical certification of products of machinebuilding in the second-quality category have on the basis of those interests been artificially reducing the share of that category. Assignment of targets to ministries in the State Plan for Economic and Social Development

for withdrawing outdated technology from production and for replacing it with new or modernized technology has been the basis for pricing authorities to apply deductions from wholesale prices to such products regardless of the results of their certification in the various quality categories. Later the deductions from wholesale prices were extended to products to be withdrawn from production in accordance with the sectoral plans of ministries and departments. As a result of the steps taken the deductions applied to outdated products planned for withdrawal from production were assigned in 1984 to almost 650 product designations, and the sum total of the deductions increased more than fourfold over 1979. But they amounted to less than 1 percent of the sum total of incentive supplements.

In connection with review of the system of product certification (elimination of the second-quality category), beginning in 1966 deductions from the wholesale prices are envisaged for products for production and technical purposes classified in the first-quality category. The wider use of the mechanism of deductions from wholesale prices has raised a number of problems related both to product certification and also directly to price incentives for product renewal and for raising the technical level of products.

At the present time products with a differing degree of newness may be assigned to the first-quality category. These are, first, products whose technical level is not high enough regardless of how long they have been in production; second, new products which have not been recommended for certification in the superior category or which have not received the state Quality Emblem for the last year or 2; and third, products which are obsolete.

Combining the various conditions for output of products in the first-quality category does not allow for unambiguous treatment of the economic content of the deductions from wholesale prices. In our opinion the procedure adopted for applying the deductions, which calls for their proportion to gradually increase from 5 to 15 percent over a period of 3 years and up to 30 percent if additional output of the product is allowed in the course of 2 years, is most applicable to obsolete products to be withdrawn from production.

When products of the same kind in different quality categories are produced, a problem arises of the correct relationship among their prices so as to take into account differences in the technical level and performance characteristics. An analogous situation arises when products have not qualified for the state Quality Emblem. It is important to ascertain the degree of failure of the quality level of a new product; this is taken into account not only in the incentive supplement, but also in the wholesale price.

There is an independent problem in the production of a new product that has not been recommended for certification in the superior-quality category; in certain branches the volume of such products represents more than 50 percent of output. The development and production of new product models whose technical level is not high enough require additional economic substantiation, and the application of penalties toward such products should be preceded by an analysis for the possibility of upgrading it to a higher-quality category over the next 3 to 5 years. The diversity of products in the first-quality



category, then, resulted in the gradual introduction of the deduction as products are certified after 1 January 1986.

The proportion of the deductions from wholesale prices and the methodology of determining those proportions for obsolete products have undergone essential changes. This reflects the complexity of introducing them into pricing practice and the opposition on the part of manufacturing enterprises. First established in 1974, the lower limit of the deductions for outdated products corresponded to no less than 10 percent of the wholesale price. In connection with the transition to applying the deductions to products in the second-quality category, their proportion was regulated within the range of 50-100 percent of the actual total amount of profit depending on fulfillment of planning targets for withdrawing particular products from production. The deficiencies of this form of establishing the deductions when the list of products produced is long resulted in the use of a fixed proportion of the profit assumed in the setting of wholesale prices for outdated products planned for withdrawal from production in accordance with the State Plan for Economic and Social Development and sectoral plans of ministries.

Introduction of a sliding scale of deductions from wholesale prices for products in the first-quality category, whose proportion is established depending on the time the product has been produced, makes it possible, assuming timely certification of products in the first category, to link evaluation of product quality to the process of the product's gradual aging. The strengthening of economic penalties the longer the product has been in production from the moment of its certification in the first category motivates industry to assimilate new technology more rapidly. But if the system of deductions is to function normally, the product's assignment to a quality category must be brought into conformity with the periods of time for renewal of particular machines and equipment and also the conditions for creation and development of new technology in the various branches. For products with a limited design period even the initial stages of the new product's development may be the basis for certification in the first category.

This problem touches upon the criteria for recertification of products in the superior-quality category. For a number of years the share of products in the superior-quality category to be withdrawn from production has been increasing. In 1984 its proportion in certain ministries was about 30 percent. At the present time the incentive supplements to the wholesale prices will be retained for the entire period of validity of the superior-quality category. This means that instead of the deductions envisaged for products to be withdrawn from production, incentive supplements will be in effect. This contradiction in the economic mechanism can be eliminated only if correct criteria for certification of products in the quality categories are developed. The excessive lengthening of the validity of the superior-quality category is having an adverse effect on rates of renewal of products being produced, the stimulative effect of the incentive supplements is being weakened, and prompt introduction of deductions from wholesale prices is being held back.



In discussion of problems of price incentives for scientific-technical progress in the the economics literature the point of view has been repeatedly expressed that balance needs to be maintained in formation of total amounts of incentive supplements and deductions from wholesale prices in order to maintain the general price level of products of machinebuilding without substantial changes. At the present time the maximum level of incentive supplements and deductions have been leveled out within the limits of 30 percent of the wholesale price. A number of factors must promote the substantial increase in total amounts of deductions from wholesale prices: extending their effect to products in the first-quality category, tightening requirements for product certification in the superior-quality category (although in certain cases relations between the total amounts of incentive supplements and deductions may differ essentially). At the same time application of deductions from wholesale prices exclusively to manufacturers does not solve the problem of reducing the overall price level of the products of machinebuilding. The present methodology for establishing the deductions is predominantly oriented toward incentives and to a considerable extent is detached from the setting of prices of new technology. In addition to the measures which call for a further strengthening of the influence of deductions from wholesale prices on the processes of raising the technical level of products and product renewal, then, there is a need to take their role into account in the formation and movement of the level of prices of products of machinebuilding.

The principal directions for the fullest realization of the possibilities that lie in price incentives for raising the technical level and quality of products are accelerating the rate of renewal of new products, increasing the economic efficiency of new machines, equipment, and devices, creating fundamentally new technology, shortening the period required to put new technology into production, and production of new technology in the volume projected.

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## PALTEROVICH DEPLORES LOW FIXED CAPITAL PRODUCTIVITY

Moscow EKONOMICHESKAYA GAZETA in Russian No 21, May 87 p 8

[Article by D. Palterovich, leading scientific associate of the USSR Academy of Sciences Economics Institute, doctor of economic sciences and professor, under the rubric "Assisting the Propagandist": "The Production System of an Intensive Economy"; text printed in boldface given in all caps]

[Text] Economic research indicates that the higher the rate and the role of scientific and technical progress, the larger the size of the operating production system and the "more ponderable" the influence exerted by the dynamics of the capital-output ratio on the general efficiency of production. Thus, for example, a reduction in the capital-output ratio either leads to a reduction in the economic growth rate or, in order to maintain the rate, forces the production of an ever-increasing amount of production means to the detriment of the output of consumption means. Moreover, with the deterioration in the use of fixed capital, the opportunities for increasing them become ever more limited. When there are enormous amounts of fixed production capital, a significant increase in production efficiency without stabilization of or at least a substantial deceleration in the decrease of the capital-output ratio, as the calculations prove, is impossible.

It is also possible to judge the role of the fixed capital in the increase in production efficiency in accordance with such indices as the increase in the capital-labor ratio in industry--by a factor of nearly 2.6 over the last three decades and the increase in the portion of amortization in production expenses for industrial output from 5.1 percent in 1970 to 9.5 percent in 1985.

Despite the sharp growth in the role of fixed production capital, until recently, adequate attention has not been paid to the matter of their conservation. The lack of effective stimuli in the economic mechanism for the conservation of labor means was one of the reasons that many enterprises and even whole sectors increased the fixed capital, without dealing with the task of improving their efficiency.

While the indices for the use of labor and material resources in the last three decades have improved, even at highly inadequate rates, but all the same improved, the capital-output ratio--the produced national income figured in rubles of the production fixed capital--was reduced by 36 percent, including

its reduction over the years of the 11th 5-Year Plan which amounted to 14 percent. In other words, in 1985, for each ruble of fixed production capital in the national economy, a national income was received that was one-third less than that of 1970. According to our calculations, somewhat conditional, in industry, a reduction in the capital-output ratio of 1 percent absorbs 0.86 percent of the increase in labor productivity.

At the 27th Party Congress, the task was set up for the coming 15 years of introducing a sudden change into the dynamics of the capital-output ratio--in the first half of the nineties, stabilization and in the second half, ensured growth. In the 12th 5-Year Plan, we are faced with the need to decelerate the rate of decrease in the capital-output ratio by a factor of two.

#### PRODUCTION FIXED CAPITAL ACCORDING TO NATIONAL ECONOMIC SECTORS

at year's end; in comparable prices; in billions of rubles]

	1985	1986	
		billions of rubles	in percentages of the whole
All fixed capital			
(including cattle)	2.333	2.465	100
Production fixed capital	1.569	1.659	67.3
of which:			
industry	765	811	32.9
agriculture	316	330	13.4
transportation and communications	323	342	13.9
construction	78	84	3.4

#### AVERAGE ANNUAL INCREASE RATES FOR PRODUCTION FIXED CAPITAL AND THE DYNAMICS OF THE CAPITAL-OUTPUT RATIO (in percentages)

	1981-1985	1986
Production fixed capital of the national economy	6.4	5.7
Capital-output ratio (produced national income for one ruble of production fixed capital)--decrease	-2.9	-1.3

An increase in the capital-output ratio of one kopeck for each ruble of production fixed capital is equivalent to an increase in the national income of more than 15 billion rubles.

(Tables compiled according to data from the USSR Central Statistical Administration)

The overcoming of the extensive nature established in the past of the development of the production system presupposes the solution of a set of complex questions. Such a nature is frequently associated only with slow renovation, a high degree of physical wear and tear and obsolescence and an inadequate level of shift use in the operation of equipment. However, in

actual reality, the forms of manifestation of the extensive, i.e., requiring increased capital and current expenses, nature of the development and functioning of the production system are more complex and varied. These forms have been complicated, first and foremost, due to the influence of the known shortcomings of the economic mechanism and the organizational structure of production.

Thus, the planning organs and ministries, overloaded by the elaboration of the great number of plan indices and the operational work for their fulfillment, do not determine to an adequate degree the technical and structural policies in the area of the reproduction of the fixed production capital. With the old economic mechanism, for all practical purposes, there was a lack of economic incentive for the associations and enterprises in the conservation of labor means, since this conservation is not stimulated, and equipment is acquired primarily through centralized capital investments. It need also be noted that, under the conditions of centralized distribution and the lack of wholesale trade in production means, the customer does not have the right to choose the equipment supplier and the supplier, who is assured of a market for his output, has no stimuli for its renovation and improvement of its quality.

It is possible to isolate the following basic forms of the manifestation of the extensive nature of the development and use of the production system.

The quantity of stock of many types of equipment, particularly traditional ones, has reached hypertrophic dimensions and the number of work places greatly exceeds the number of workers of the corresponding specialties. Calculations have shown that in the USSR's national economy the number of metal-cutting machine tools is greater than in the USA, the FRG and Japan combined, and exceeded the number of machine-tool operators at the beginning of the seventies by an approximate factor of 1.4 and at the beginning of the eighties by a factor of nearly 1.9. Analysis indicates that, along with the acute shortage of many means of mechanization and automation, there is a significant overaccumulation of a number of large components of the equipment stock. This stock is growing more and more, whereas, under the conditions of intensification, it should quantitatively decrease, which is supported in particular by the data from the inventory lists of metal-working equipment in the USA and England.

Within the equipment stock, the portion of equipment which conforms to the higher world standard is low. In 1986, only 29 percent of the mass-produced machine building output conformed to the world standard.

At many enterprises, they are still trying to set up inadequately efficient new equipment and to use the higher level equipment without making any changes in the other links of the production chain. It is understandable that the similar path of technical re-equipping of production, in essence, means an extensive development of the production organization. Proof of this is the disruption of the necessary proportionality between the attended or mutually complementary types of equipment.

Even more frequent, for example, are the instances of the appearance of numerically-controlled equipment at enterprises without procurements and the



necessary quality control instrument, computers for automation without the peripheral equipment, industrial robots without the (timing) tables and clamps, and (power-saturated) tractors without the corresponding materials-handling machinery. At many enterprises and factories, disruptions arise systematically between the elaborations in the field of technology and equipment. For example, in machine building there is a lack of equipment for advanced technologies in machining by pressure. In ferrous metallurgy there is a shortage of plants for continuous casting of steel and in the construction materials industry there is a shortage of equipment for the dry method of cement production.

The extensive nature of the development of the production system shows clearly also in the discrepancy between the standard dimension structure of the machinery and the nature and conditions of production. This is related to the structure of the stock of machine tools, tractors, excavators, bulldozers and many other types of machinery and mechanisms. Such a discrepancy inflicts enormous losses on the national economy and has a negative effect on the dynamics of the capital-output ratio.

Significant influence is also exerted on the movement of the capital-output ratio by such an increase in prices for labor means when it outpaces the increase in their useful effect.

We will note as well the substantial deviations of the equipment servicing time frames from the time frames for its physical wear and tear and its obsolescence. This becomes clear in the slow renovation of many types of equipment, the the availability in stock of a large amount of out-dated and worn-out machinery and in the rapid increase in equipment repair expenses. The low level of reliability and the durability of certain types of equipment will lead not only to an anticipatory write-off, but also to an extensive amount of time wasted on equipment repairs. The production rhythm is disrupted and the repair services staffs grow.

Such phenomena as the availability of a large amount of uninstalled equipment and machinery, being repaired or held in reserve, intrashift stoppages and the use of machinery not in conformity with its primary purpose lower the level of the capital-output ratio to a no lesser degree than the low shift-use factor.

Finally, the efficiency of the production system is reduced because of the inadequate conformity of the technology, machinery and equipment to the contemporary requirements for the labor conditions and the technical design.

All the enumerated factors of the extensive development of the production system and the reductions in the level of the capital-output ratio in the most diverse sectors of the national economy and in enterprises and associations should be eliminated on the basis of the contemporary technical policy and the basic restructuring of the economic mechanism. In elaborating and implementing the programs for the technical re-equipping of each sector and each enterprise, it is necessary to start with the complete series of requirements for the production system of an intensive economy. Indeed, neither the speed of renovation nor the high degree of novelty of the technology nor the level of automation guarantee in and of themselves

production efficiency and the solution of the most important social and economic problems. The national economy and each production link do not generally need the newest or highly automated technology, but rather advanced technology which conforms to the actual operational conditions.

Taking this into account, the production system of an intensive economy should be based on such latest achievements of scientific and technical progress as possess sufficient maturity to ENSURE THE RELIABLE AND HIGHLY EFFICIENT USE OF MACHINERY AND EQUIPMENT BY THE CONSUMERS. Such requirements are especially urgent during the introduction, for example, of industrial robots, flexible production systems and other expensive means of automation. While introducing such technology, it is necessary to ensure its high quality and reliability and the careful preparation of the enterprises for the use of the new labor means.

The programs for the technical re-equipping of production should be based on the application of COMPLEX TECHNICAL SYSTEMS, WHICH CONFORM TO THE SPECIFIC CONDITIONS OF THEIR OPERATION AND WHICH ENCOMPASS ALL THE STAGES OF THE BASIC AND ANCILLARY PRODUCTION. It is well known that, because of the lag in the technical equipment level of the ancillary production, investments in it not only yield a huge effect, but also increase the effectiveness of the investments in the basic production.

An important feature of the production system of an intensive economy is the INCREASE IN THE GROWTH RATE OF LABOR PRODUCTIVITY, NOT ONLY IN THE PRODUCTION OF THE MEANS OF PRODUCTION, BUT ALSO IN THE SPHERES OF THEIR USE, SERVICING, REPAIR AND STORAGE.

Also substantial is the fact that the introduced technology should satisfy the tasks of the comprehensive intensification of production, TO ENSURE NOT ONLY THE GROWTH OF LABOR PRODUCTIVITY, BUT ALSO THE CONSERVATION OF RAW MATERIALS, FINISHED MATERIALS, FUEL AND ENERGY. In a number of the features of the new production system of the intensive economy, we will also note ITS CONFORMITY TO SOCIAL REQUIREMENTS, THE TASKS OF IMPROVING LABOR CONDITIONS, THE ENSURANCE OF THE TECHNOLOGY'S SAFETY, AND THE PROTECTION OF THE ENVIRONMENT.

Many important elements of the advanced technical policy are already finding reflection in the plans for the technical modernization and retooling of enterprises and associations and are embodied in the new factories. However, a substantial portion of such plans still represent uncoordinated and minimally significant measures and does not ensure the transition of production to a modern technical level and also is not connected with the concept of the technical development of the sector. In the matter of the intensification of the reproduction of basic fixed capital, we are still confronted with the need to make full use of the possibilities of the new economic mechanism, of the completely self-supporting operation and of self-financing. The necessity of earning one's own resources for the technical development of production objectively compels the enterprises and associations to fastidiously approach the level of the acquired technology and its efficiency.

Editor's note: The questions of raising the efficiency of the established production potential and the efficient use of the fixed production capital and been taken up in articles published on the pages of this newspaper this year: "Restructuring Sets the Pace" (No 1); "Optimization of the Reproduction of Fixed Capital" (No 2); "On Idle Machine Tools" (No 7); "Standards for Efficiency Needed," "How Profitability has been achieved" (No 8); "Through the Prism of Profit" (No 13); and "Without Cliche and Formalism" (No 16).

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## ALTAY KRAY'S ALEYSKIY RAYON EXPERIMENT EVALUATED

## Officials Discuss Self-Support

Moscow SELSKAYA ZHIZN in Russian 20 Jun 87 p 4

[Discussion among Aleyskiy Rayon officials; "Self-Support (samookupayemost)-- A Requirement of the Times. New Managerial Methods Are Motivating Workers in Aleyskiy Rayon Towards Developing Production, Raising Wages and Constructing Housing Using Their Own Resources"; first four paragraphs are source introduction]

[Text] As is known, in the decree of the CPSU Central Committee entitled "Organizational Work of the Altay Kray CPSU Committee In Connection With the Introduction Into Agricultural Production of Cost Accounting (khozraschet) and Progressive Forms for Labor Organization," the task is assigned of converting all farms over to self-support and thereafter to self-financing within a brief interval of time. Up until recently, this work was carried out in a very timid manner throughout the kray. Meanwhile, instructive experience in improving cost accounting operations is available in the Altay Kray.

Since the beginning of the five-year plan, the farms in Aleyskiy Rayon have been mastering the operational principles of self-support in the form of an experiment. By no means is everything proceeding smoothly; mistakes are being made. But the fact of the matter is that this year the Aleysk sovkhoses and kolkhoses have been living on the basis of earnings produced by their own labor.

What problems are the collectives encountering under the new conditions and how are they solving them. This was the subject of a business-like meeting which SELSKAYA ZHIZN convened in Aleyskiy Rayon in the Altay Kray.

One participant in the discussion compared the situation which confronted the Aleysk farms in 1986 to the status of a young family which had been deprived of the usual and considerable assistance furnished by parents. The participants in this business-like meeting maintained that it is considerably more complicated to develop a healthy budget for a kolkhoz or sovkhos. Indeed, the final result is dependent upon harmonious actions by not two but rather by hundreds of people and relationships with dozens of enterprises. Yes and the habit of spending beyond one's means in the belief that sooner or later the

state will write off the obligation that develops has become a principal consideration of many leaders. Self-support is changing the economic situation radically.

#### Living According To One's Means

Yu. Rozov, chairman of the Aleyskiy RAPO [rayon agro-industrial association]: In order to present the picture as it was in the beginning, I will mention the economics of RAPO during the 11th Five-Year Plan. Even at best, the economics for two of our farms in 1985 remained unprofitable. The profit of 20 others amounted to 20 million rubles. Since a large portion of this sum was immobilized and the volume of capital investments exceeded 11 million rubles annually, it comes as no surprise to learn that the kolkhozes and sovkhoses resorted to the use of budgetary means and bank credit on an extensive scale. The overall indebtedness of farms approached 100 million rubles. By the beginning of the current five-year plan, the kolkhozes and sovkhoses still had not accumulated one half million rubles in their current accounts.

Then there were the results for 1986. All of the kolkhozes and sovkhoses became profitable. They earned 23.6 million rubles worth of profit -- ten and a half million more rubles than the amount called for in the plan. Moreover, less than one half of the overall amount resulted from mark-ups added to the purchase prices. The profitability level for all RAPO farm activity reached 42 percent.

V. Panarina, manager of the rayon office of USSR Gosbank: The leaders and bookkeepers of a majority of farms are coming to our bank in quite a different mood than was earlier the case. At the beginning of this current year, the kolkhozes and sovkhoses had more than 10 million rubles in their current accounts. Their indebtedness for short term loans had declined by 6 million rubles. Last year three fourths of the capital investments were financed by means of the internal funds of farms and the remainder -- by means of bank loans.

This year all of the farms are giving thought to expanding their production and social fixed capital without resorting to the use of long-term credit. There are no overdue payments.

Yu. Rozov: The profit was earned mainly as a result of positive advances in production and in its effectiveness. Here are some figures.

Last year the kolkhozes and sovkhoses fulfilled ahead of schedule their plans for selling grain, meat, milk, wool and eggs to the state. They supplied the country with 95,000 tons of grain -- 15,000 more tons than in 1985. Record amounts (for the rayon) of strong and durum wheat were sold. The production cost per ton of grain declined by a small amount -- 3 rubles.

The state purchases of milk increased by seven and meat -- by 12 percent. This occurred mainly as a result of improvements in the quality indicators. The milk yield per cow increased by 133 kilograms. The average weight of a young bull turned over to a meat combine reached 425 kilograms. And all of this took place with fewer expenditures. Compared to the last year of the 11th

Five-Year Plan, the production cost for a quintal of milk declined by 4.7, for weight gain in cattle -- by 25 and hogs -- by more than 60 rubles.

A. Kolesnikova, deputy chairman of RAPO for economics: And there is still one other important aspect: earlier, many economic executives attempted to enliven the labor activity of workers using only various additional payments and bonuses, which quite often were not even associated with the final results. As the saying goes, for just one appearance on a field or farm. Cost accounting and the collective contract raised the "value of working time." And the result: last year labor productivity on the farms was raised by 32 percent and wages -- by 2 percent.

Yu. Rosov: It nevertheless should be recognized that by no means are all of the leaders and labor collectives utilizing the opportunities presented to us for managing effectively. Many tend to place more reliance upon the new rights that have been extended to them rather than carrying out the real chances available for earning funds. Thus it turns out that the Kolpakovskiy and Yarovskoy sovkhoses are obtaining approximately 10 quintals of grain, with slightly higher yields being obtained at the Pobeda and Novaya Zhizn kolkhoses. Of 19 farms which grow sugar beets, only three fulfilled their sales plans and in some areas less than 100 quintals of the sweet roots were obtained per hectare.

What explains the losses? They derive from a lack of understanding that today it is impossible to operate on the basis of old methods, nor can one live better using methods of the past. A hectare is not producing proper income in those areas where the seed of mass reproductions is continuing to be sown and where only miserly dosages of organic materials are being applied to the soil.

Nor have we made full use of all of the reserves available in animal husbandry, reserves which are to be found in the restoration of elementary order in production operations. Many farms were forced into using low quality feed in their livestock rations during this year's wintering campaign.

All of this affects the financial status of the farms at the end of the year. Those who work better will proceed in a more confident manner. Thus an increase was noted this year in the number of thrifty and zealous individuals. The rayon is over-fulfilling its plans, the production costs for meat and milk have declined and profitability has increased. The sowing was carried out during the best periods and the feed supply has been increased.

A change has taken place in the attitude towards work and discipline has improved. Here is some data. The number of average annual workers on the farms has decreased somewhat, but in return the participation by each individual in social production has increased. The number of loafers has declined by a factor of 1.5.

A most important result of the year could be the fact that the agricultural workers are acquiring a taste for thrift, for analysis and for accounting. If you please, this applies primarily to the rank and file farmers and livestock breeders.

### At Each Working Position

N. Pogorelov, brigade leader at the Aleyskiy Sovkhoz: We simply need self-support. We have forgotten the value of social ownership and how to make the most of each kopeck. And when cost accounting was introduced at the farm last year, there were only a few who understood its advantages. There were also some who were dissatisfied with it. But after working with it for two or three months, the milkmaids became convinced that such accounting was needed.

In particular, the checkbook system was helpful. Although I must admit that initially I thought it was an invention by the specialists. Later, following a closer examination, I recognized that it was a good and worthwhile system. True, it added further concerns. But on the other hand, it provided me with instant knowledge of the means available to the collective. Nobody can be charged with unwarranted expenditures. Everyone is aware of the price: for repair work and for feed. This also applies to the purchase of pails, robes and cheese-cloth.

In addition to the farm, we also emerged the winners. Almost 500 more quintals of milk were obtained than the amount called for in the plan -- a portion of its value was credited to the collective. Approximately 99.6 percent of the products were turned over as being of 1st grade quality -- our collective wage fund increased by more than 6,000 rubles. The production cost for a quintal of milk turned out to be slight and yet it was lower than the planned cost -- again a bonus for the collective. Thus it developed that the livestock breeders began earning more than 11 rubles daily instead of 8 as was formerly the case.

S. Zhelebovskiy, team leader at the Druzhba Sovkhoz: Yes, cost accounting makes it possible to sense objectively that you are the master of your production operations. A contractual agreement protects independence and enables one to solve the problems of equipment operation and personnel assignments. Certainly, we are not avoiding work at the sovkhos, nor are we carrying out any work to the detriment of the team. It bears mentioning that it is also profitable to us and that it adds to the collective's wage fund.

There is still one other lesson which we derived from the year's work. Once the team accepts cost accounting, it will no longer tolerate careless work on the part of others. For example, if the suppliers are guilty of dumping fertilizer directly on the ground and fail to protect it against inclement weather, should we issue a check covering the fertilizer losses? Certainly not. Each individual must be held monetarily responsible for his own mismanagement.

I drew the following conclusion: all members of the team must be held responsible for strengthening the regime for achieving savings. This is not always realized immediately -- there may be over-expenditures of seed and the inventory of goods may not be monitored properly. More money is needed. Thereafter, each individual strives to ensure that full value is realized from each ruble spent. Even though the overall expenditure limit is approximately 180,000 rubles and each kopeck must be taken into account.



Thus we learn how to live. During the year, 1,000 tons of grain were produced over and above the plan. Labor productivity was 30 percent higher than the task and wages -- 7 percent. Each individual received 3 tons of grain in the form of a payment in kind.

Yu. Rozov: Within the rayon, practically all of the contractual collectives engaged in producing grain, milk, meat and feed are coping successfully with their annual plans. In actual practice, the personnel saw a close link between their contribution to social production and their personal well-being.

Material incentives for the personnel in the form of payments in kind or money, using a portion of the above-plan output obtained by a brigade or team, proved to be very helpful in this regard. Moreover, the maximum bonus handed out amounted, ruble for ruble, to the basic payment for the products. The reserve fund for the given collective is formed by means of the remaining portion of the computed sum.

S. Zhelebovskiy: We have 1,000 "reserve" rubles in our account. In principle, the idea is a good one -- to have a reserve of strength for the future, in the event of unfavorable weather conditions. It is important to ensure that this money does not "disappear from the team," or that discussions take place indicating that it is to be used for other purposes.

A. Kolesnikova: No, not one ruble can be removed from the reserve fund without the agreement of the team. You are the master of these funds.

R. Novikova, chief economist for the Oskolkovskiy Sovkhoz: I would like to raise the following question. Standing alongside me is a team leader from our sovkhaz, Georgiy Aleksandrovich Konyushenko. He is obtaining more than 200 quintals of sugar beets from each hectare. And how much are we obtaining throughout the rayon as a whole? Only 82 quintals per hectare.

The team has no "secrets." It is simply a matter of work being carried out in a conscientious manner. And yet I am ashamed to face him. This year again I was forced to lower the team's rate per quintal of beets. And those who work in a slipshod manner are obtaining 2-3 times more for the same amount of roots. And on a completely legal basis: the basis for computing the rate -- the yield level achieved.

How can this foolishness be avoided? I turned to many specialists, including some attached to RSFSR Gosagroprom [State Agro-industrial Committee]. I still have not received a reply.

Be Industrious, Specialist!

I. Popravka, chairman of the Pravda Kolkhoz:

It is quite clear that successful work in connection with self-support is largely dependent upon the industry and responsibility displayed by a leader. The chief concern -- to motivate each farm worker such that he carries out his work in a fine manner.

This is why our kolkhoz has devoted special attention to creating conditions for efficient work by the brigades and farms. They have all been converted over to a collective contract and to cost accounting and they are employing the check form for controlling expenditures.

Yu. Rozov: This year all of the rayon's field crop husbandry and animal husbandry subunits are operating on a cost accounting basis. True, initially the results were not as expected. Accounting was carried out rather weakly in a number of brigades and on farms and it was not always in the best interests of the middle echelon specialists. Wages began to grow more rapidly than labor productivity. We were properly criticized for this.

The shortcomings had to be corrected as we went along. The check system of mutual accounts was mastered in all areas and new statutes were approved for cost accounting and for the wages of kolkhoz and sovkhos leaders. Balance committees convened each month directly on the farms and reports were delivered by branch, team and brigade leaders. Middle echelon specialists were included in the brigade and team structures.

S. Zhelebovskiy: This is not the case in all areas. For example, mechanics chose to reject cost accounting. And a great deal depends upon them, particularly the expenditures for equipment operation.

M. Gritsenko, department head at the Siberian Scientific Research Institute of Agricultural Economics: Cost accounting contracts are still not being mastered sufficiently in service production operations: in repair workshops, motor vehicle pools and construction shops.

A. Dedushev, chairman of the Aleyskiy Rayon Executive Committee: The old psychology of obtaining products at any cost has still not been eliminated. Although the production costs for products have declined on many farms, they are still greater than those planned. And this represents hundreds of thousands of unearned profit. Livestock losses are very high. Savings in the use of resources are still being stimulated only weakly.

In short, a reliable and efficient anti-expenditure mechanism is needed. It is our hope that the situation can be corrected by converting over to a system of wages based upon the gross income produced. This principle has already been mastered by 13 farms.

L. Shaulskaya, chief economist at the Pravda Kolkhoz: Here it has been stated quite accurately that self-support requires effort on the part of each individual. The improvement in the mood of the personnel is obvious. And nevertheless the milkmaids are still devoting more attention to economic matters than the specialists. Thus, during the initial meetings of a bureau for economic analysis which we created, there was more formalism than realistic work.

Yu. Rozov: Truly, many branch leaders are not participating in the planning, development or assignment of cost accounting tasks to the collectives.

M. Gritsenko: I believe that such a situation has developed owing to the fact that the chief specialists of farms receive wages based upon overall farm results and not according to the effectiveness of the particular branch. Thus skilled technologists perform in the role of advisers to middle echelon leaders. And they must themselves be interested in organizing production and in introducing scientific achievements and leading experience into operations.

There is one conclusion -- to convert over to branch cost accounting and to the departmental structure of administration in a more bold manner.

V. Panarina: To live according to one's means implies having a good grasp of financial matters. On the whole, the plans for volume of capital investments and for placing fixed capital in operation have been fulfilled. No longer is there any diversion of working capital into capital expenditures. It is important to note that roughly 9,600 square meters of housing space -- twice as much as was formerly the case -- have been placed in operation. Some economic leaders have acquired a good understanding of the new system for utilizing capital investments and they are skilfully maneuvering their resources. On the whole, the RAPO [rayon agro-industrial association] volume of unfinished construction has even increased and the plan for the placing in operation of productive capabilities has been disrupted.

Thus there are still many who must master the art of taking investments into account. This includes ourselves and the bank.

#### RAPO: The Unity Is Still Weak

A. Dedushev: We are convinced that in the absence of constant personnel training it is impossible to master the economic methods of management. It was with this thought in mind that we commenced preparations for converting over to self-support. During the last quarter of 1985, exercises were carried out with leaders, specialists and middle echelon personnel in accordance with a specially developed program. Instructions were provided for party, soviet, trade union and komsomol workers. Also included were the rank and file workers of kolkhozes and sovkhoses. Balance committees became a fine school for instruction.

This year, in January and February, repeated training was provided for all leaders and specialists throughout the rayon. We view improvements in economic efficiency as a means for further strengthening intra-rayon and intra-farm production specialization and concentration. Our active sovkhoses, engaged in the maturing and fattening of livestock, are obtaining good profit and they are not even being provided with mark-ups added on to the purchase prices. In other branches, full use is still not being made of the advantages offered by specialization.

A. Kolesnikova: Here we have already discussed the reserve wage fund for contractual collectives. We are creating a reserve of strength for confirming the principles of self-support for the association as a whole. A reserve wage fund has been formed in the amount of 5 percent of the corresponding funds of farms. For kolkhozes and sovkhoses -- depending upon their economic status --



the amount of withholdings is differentiated from 4.1 to 6.8 percent. In all, more than 1 million rubles were accumulated in this manner.

This amount was differentiated by farms and a contribution was made to the central reserve fund of the RAPO. Over the course of a year's time, it amounted to 3.7 million rubles. No haste was displayed in spending this money.

M. Gritsenko: I am constantly monitoring the course of the experiment. The past year has shown that the RAPO, as an organ of administration, has great opportunities at its disposal for exerting a positive influence on production organization and economics. The operational style and methods of the staff are being improved and the long-standing habits and trends in relationships between enterprises are disappearing.

But there are still substantial shortcomings in the work of the RAPO staff. The number of leading workers is declining only slowly. Some economic executives possess an incorrect understanding of the essence of independence and tend to understate the plans for output production. How then can they achieve self-support?

The RAPO did not immediately reject its habit of dictating to the kolkhoses and sovkhoses the plans for sowing areas, yields, numbers of livestock and their productivity. As a result, the cost accounting tasks for 1967 were delayed in being made available.

N. Lukyanenko, chief economist at the Slava Sovkhoz: As yet, not all of us have established relationships with our allied workers in the sphere for the servicing and processing of agricultural products. Some lower the fat content in the milk which they supply, while others charge exorbitant prices for the repair of equipment or for the sale of spare parts.

S. Zhelebovskiy: Let us take the intensive technology for the cultivation of spring wheat. Throughout the rayon, it furnishes an increase in grain on the order of roughly 5 quintals per hectare. It was difficult to expect more if the work involved raised dosages of fertilizer. And the fertilizer was loaded manually. Moreover, very little was done in the interest of protecting the sowings against pests, diseases and weeds.

M. Gritsenko: Generally speaking, Selkhozenergo is not concerned with the technical servicing of electrical equipment or units, but rather merely provides assistance in correcting deficiencies in logistical supply. In my opinion, cooperation between state enterprises having mixed feed plants on the one hand and sovkhoses and kolkhoses on the other should ideally be further expanded. Here I have in mind the processing of forage grain and obviously on a mutually advantageous basis. But the following situation is still taking place: last year the rayon's kolkhoses and sovkhoses fed approximately 30,000 tons of grain materials and flour to their livestock, while at the same time use was being made of only one half of the capability of a mixed feed plant in Aleysk.

L. Naumov, secretary of the Aleysk Municipal CPSU Committee: Here we came to understand that the people understood the importance and advantages offered by self-support and that a psychological barrier had been overcome. I believe that it is still too early to mention this fact. One must campaign for the new forms of management.

There is still one other consideration. There are those who believe that the economic levers by themselves are capable of solving today's complicated organizational and educational tasks. But we are forgetting the moral stimuli. Thus bonuses were issued to contractual collectives, but were any public statements made favoring these bonuses. No. Is the prestige of those who work in a conscientious manner always high? We overlook the best economists and bookkeepers. And here a considerable amount of fault rests with the party organizations and the municipal party committee. The best forms for a socialist competition under the new conditions have not yet been found.

We are still teaching and instructing in a poor manner. Let us take a school. Instructors, teachers and social scientists are not familiar with collective contracts. And yet they are training personnel who tomorrow will become members of cost accounting collectives.

#### Correspondent's Commentary

Moscow SELSKAYA ZHIZN in Russian 20 Jun 87 p 4

[Commentary by Yu. Savin and A. Torichko, special correspondents of SELSKAYA ZHIZN: "Non-Standard Solutions Are Needed"]

There is still the matter of experience. And it is experience which in our opinion has already furnished initial results. In the words of a brigade leader at the Aleyskiy Sovkhoz, Nikolay Gavrilovich Pogorelov: "We simply need self-support. We have forgotten how to value social property and to count each kopeck." What does a kopeck amount to? Hundreds of thousands and millions of rubles are used for solving the food problem.

During a conference in the CPSU Central Committee on 23 January of this year, emphasis was placed upon the fact that priority importance is being attached at the present time to improving decisively the use of the potential created in the rural areas. The economic mechanism for management, an organic part of which includes the principles of self-support and self-financing, must motivate the labor collectives into handling more efficiently the resources entrusted to their care. The experience accumulated in Aleyskiy Rayon reveals once again: under conditions in which all expenses must be covered by internal income, life itself forces the leaders, specialists and rank and file workers to be true masters of their production operations.

Obviously, the inclusion of budgetary appropriations in the mark-up added on to purchase prices is of great assistance to the Aleysk workers. But the majority obtain these appropriations simply free of charge and they are not making sufficient use of the opportunities for increasing their income. Meanwhile, the experience employed in the Aleyskiy RAPO is quite simple:

increase the production and sale of products, improve their quality, lower production costs -- and one becomes richer. And in order to accomplish this, one must introduce intensive technologies, leading experience and scientific achievements and establish a barrier against losses. At a kolkhoz, sovkhos or association, it is much more obvious how this can be accomplished.

Self-support and self-financing are impossible in the absence of participation by all concerned in searching for reserves for raising production and for strengthening the thrift regime. Quite properly, the Aleysk workers are giving priority attention to these problems. Certainly, not all of the middle echelon leaders in the rayon are as energetic and business-like in their work as N. Pogorelov, S. Zhelebovskiy or G. Konyushenko. But the first year many acquainted themselves with analysis and economic accounting.

At the same time, it revealed that the traditional forms for cost accounting and material stimulation are not adequately motivating the personnel nor are they strengthening the thrift regime. Is it because the actual expenditures in the principal branches are higher than those planned that in Aleyskiy Rayon the incentives for economizing in the use of resources occupy only a negligible portion of the wages for kolkhoz and sovkhos workers?

A special question -- restructuring of the psychology of thinking by farm leaders and specialists. This is borne out by publication of the rayon newspaper MAYAK TRUDA, each issue of which contains materials dealing with the principles of self-support. In addition to positive experience, it also provides many examples of lack of administrative ability and mismanagement.

More work must be performed by the rayon element of agroprom [agro-industrial committee]. There are positive, albeit humble, changes taking place in the relationships with allied APK [agro-industrial committee] workers. Meanwhile, one of the chief goals of the experiment is that of improving the system for administering the RAPO. No use has been made throughout the rayon of a tested lever for raising production and economizing in the use of resources -- specialization and inter-farm cooperation.

The new tasks cannot be solved using old approaches. Although it is a well known truth, the inertia of former approaches still turns out to be stronger. One year ago, in this same Aleyskiy Rayon, scientists recommended a conversion over to wages based upon gross income -- they were warned against accepting this proposal. And they lost. Thought was given to the electivity of the leaders and fears were registered. And time passed. They undertook to sell a portion of the planned vegetable output at market -- yet they retreated upon encountering their first obstacles. This was also a lesson for the future: to undertake a reasonable risk and to search for unique solutions.

Moreover, the organizers of the experiment needed such a risk and such a search. If we have in mind large-scale accounting, then there remains only the creation of an economic base for compensating for expenses in the form of income. The economic mechanism existing in Aleyskiy Rayon still fails to interest the farm leaders in undertaking tense plans and the working staff of the RAPO -- to abandon all attempts at disrupting the independence of

enterprises. One senses the desire on the part of the economic executives to lower the planned volume of product sales and to overestimate expenditures.

Once again, a unique method must be sought. The possibility exists -- the rayon is experimental in nature. One of its chief tasks is that of creating a modern economic mechanism which will satisfy operational practice on a large scale.

As yet, the system of material stimulation fails to motivate personnel into utilizing their potential to the maximum possible degree. The example of beet grower G. Konyushenko is no exception. There is no clear picture in the rayon as to how best to pay farmers during years complicated by weather conditions. Last year was generally a favorable one from this standpoint.

The participants in the meeting discussed imperfections in the existing system for the formation of the wage fund. All favored the normative method. But the basis for the computations -- indicators achieved in previous years for the output sales volume and for the wage fund -- was considered to be questionable. It places in a more favorable position those who formerly strived to obtain more from the state and to give less to it.

One can agree with the opinion expressed by the rayon's leaders that today's organization of the experiment lacks a systematic nature and strict, harmonious and logical sequence. There is a clear lack of scientific-methodological management in the development, verification and analysis of the effectiveness of individual components of the experiment.

Nevertheless, it was agreed during the meeting that the experiment endured despite the initial distrust of it. Its result -- an increased understanding that it is impossible to employ obsolete methods under modern conditions. Self-support and self-financing represent the call of the times.

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FORAGE, GRAIN CROP IN KRASNODAR, CENTRAL CHERNOZEM

Increase in Hectare Yields

Moscow SELSKAYA ZHIZN in Russian 5 Dec 86 p 1

[Article by G. Kolenchuk: "With Concern About the Seed"]

[Text] Lipetsk, 4 Dec--In recent years, the farmers of Klevenskiy Rayon have been obtaining rather good harvests of grain and legume crops on the poorest fields in the oblast in terms of natural fertility.

The increase in the yield per hectare was promoted by the better cultivation of the land, the highly efficient use of fertilizers, the reduction of the time for the performance of agricultural procedures and the effective care of seed by agronomists. At the present time, all stocks of spring grains and legume crops in the rayon are of the first or second class of the sowing standard.

Ammonia Water Used

Moscow SELSKAYA ZHIZN in Russian 24 Jan 87 p 1

[Article by G. Kolenchuk: "They Are Increasing the Fertility"]

[Excerpt] Lipetsk, 24 Jan--The application of ammonia water to the soil is assigned an important role in the work to raise the fertility of the plowed fields. The overall volume of cisterns for the storage of liquid nitrogen fertilizers at the kolkhozes, sovkhoses and oblast association Agropromkimiya permit the storage of no less than 170,000 tons of this fertiliier. Almost 130,000 tons of ammonia water have already been delivered and poured into the tanks. The workers of Krasninskiy, Dobrinskiy, Lev-Tolstovskiy and Usmanskiy rayons were the first to complete this work.

During these days, the drivers of the Sokol Agropromkimiya Association are giving the farmers of Dobrovskiy and Khlevenskiy rayons a great deal of help in the transport of the fertility water.

## Machinery Repair Work

Moscow SELSKAYA ZHIZN in Russian 18 Feb 87 p 1

[TASS report: "Ahead of Schedule"]

[Text] Belgorod, 17 Feb--The mechanics of Belgorodskiy Rayon are ahead of schedule in the repair of agricultural machinery. They have already readied nine out of ten tractors. Sowing and cultivating mechanisms have been completely repaired and four-fifths of the combine pool has been reconditioned.

The efficient interrelationship of kolkhozes and sovkhoses with the technical repair enterprise of the RAPO [rayon agro-industrial association] contributes to the success. Its on-site specialists diagnose the equipment and decide what should be sent to a specialized shop and what can be reconditioned locally. For this purpose, a reserve of spare parts has been established at each farm.

## Intensive Fields Expanded

Moscow SELSKAYA ZHIZN in Russian 15 Mar 87 p 1

[Article by G. Kolenchuk: "Without Expending Manual Labor"]

[Text] Lipetsk, 14 Mar--The farmers of Dobrinskiy Rayon decided to increase the yield of grain fields by a factor of more than one and half this year. The transition to intensive methods of cultivating not only winter wheat but also peas and hulled crops will help in doing this. The area of the intensive field has been almost doubled in comparison with last year.

## Extra Machine Operators Trained

Moscow SELSKAYA ZHIZN in Russian 4 Apr 87 p 1

[TASS report: "Reinforcements for Machine Operators"]

[Text] Belgorod, 3 Jun--The detachment of machine operators of Belgorod Oblast received reinforcements on the eve of the sowing campaign. More than 1,500 people trained as machine operators in preparatory courses will take the machines out into the kolkhoz and sovkhos fields. The machine operators improved their qualifications in courses specially organized by the RAPO for the study of intensive technologies in farming.

Also participating in the field work are about 2,000 workers of industrial and transport enterprises who have assimilated rural specialties on a part-time basis. This will provide for the two-shift work of machinery in the spring planting.

## Shortage of Soil Moisture

Moscow SELSKAYA ZHIZN in Russian 21 Apr 87 p 1

[Article by A. Morgachev: "They Are Taking Coordinated Action"]

[Excerpt] Lipetsk, 20 Apr--The farmers of Lipetsk Oblast face spring field work on 1.2 million hectares. Despite the large scope of the work, only days have been allocated for harrowing and 60 hours for the sowing of early grains and annual grasses. Rape will be sown in 30 hours. The characteristics of the spring dictate this pace. The fact is that the reserves of moisture in the meter layer are already considerably below the average over many years. Each spring day, 20 to 30 tons of moisture evaporate per hectare.

This is why the maturing of the soil is being monitored everywhere and why the work is getting under way without delay.

## Sowing Preparations Under Way

Moscow SELSKAYA ZHIZN in Russian 22 Apr 87 p 1

[Article by A. Katkalov, non-staff SELSKAYA ZHIZN correspondent]

[Text] Voronezh Oblast--The high level of organization of the work, well-coordinated equipment, and the striving for strict observance of technological discipline have become characteristic of the preparation for the sowing for all farmers in the oblast. Just for the cultivation of sugar beets, corn and sunflowers on industrial fields, 2,000 splitters have been manufactured at local enterprises. Nor must one fail to mention that for the first time in the oblast they are applying fertilizers with the help of aircraft and ground resources in the entire area of the spring grain crops. No less attention is being paid to the intensive field of winter wheat, where it is programed to obtain 40 to 50 quintals of grain per hectare.

## Sowing, Fertilizing Work

Moscow SELSKAYA ZHIZN in Russian 30 Apr 87 p 1

[Article by A. Trubnikov: "Under Hourly Schedules"]

[Text] Kursk, 29 Apr--After the delayed spring, the weather finally became favorable. And immediately the fields resounded with the roar of engines. Hundreds of sowing assemblies have been involved in the work. To make up for the time lost because of the bad weather, many machine operators are working hourly schedules, making maximum use of the daylight and, for the preparation of the soil, of the nighttime hours.

The sowing of sugar beets has begun. The farms of Belovskiy and Sovetskiy rayons were the first to start.

The supplementary feeding of winter crops is also in full swing. Forty aircraft of the agricultural air fleet are circling over the fields. Ground resources have also been involved.

#### Accelerated Sowing Planned

Moscow SELSKAYA ZHIZN in Russian 2 May 87 p 2

[TASS report: "Every Hour is Valuable"]

[Text] Belgorod, 1 Jun--In the spring fields, which have long awaited the plowmen, May Day was celebrated by the nonassigned links of Belgorod Oblast that incorporated themselves in the mass sowing of early grain crops--barley and peas.

This year's work in the oblast's fields is beginning under difficult conditions. The unprecedented late spring disrupted all of the plans of farmers. And now, when truly springlike sunny weather has finally arrived, more than 1,000 unassigned links harmoniously brought all of the sowing machinery out into the fields. They are to sow almost 300,000 hectares in spring crops.

The peculiarities of this spring dictate to the farmers a clear tactic for the sowing campaign. To make maximum use of every hour of good weather, it has been decided to perform field work everywhere at an accelerated pace, in two shifts. Interested in good final results, members of cost accounting collectives thought out the organization of labor in the sowing campaign in detail. As a rule, wide-coverage machine units are utilized in the sowing. Acceleration is also accomplished through the extensive utilization of mechanized seed fillers.

In making maximum use of the possibilities of the collective contract, oblast machine operators intend to complete the sowing of early grain crops in 3 or 4 working days.

#### Early Grain Crops Sown

Moscow SELSKAYA ZHIZN 7 May 87 p 1

[TASS report: "Effect of the Contract"]

[Text] Belgorod, 6 May--The farmers of Belgorod Oblast needed only 5 working days to complete the sowing of early grain crops in the entire area of more than 300,000 hectares. The extensive use of the collective contract ensured the success of the sowing campaign now concluded.

More than 1,000 unassigned links established at the oblast kolkhozes and sovkhoses completed most of the work in the cultivation of grain and industrial crops. The emphasis this late spring on the two-shift utilization of sowing units and the condensed schedules for field work everywhere guaranteed the efficient organization of the sowing campaign.



## Treatment Against Pests, Diseases

Moscow SELSKAYA ZHIZN in Russian 20 May 87 p 1

[Article by A. Katkalov: "Care of the Crops!"]

[Text] Vornesh, 19 May--In completing the sowing, oblast farmers are immediately proceeding to care for the plantings of grain, industrial and fodder crops. Agricultural aircraft appeared over the fields of the kolkhozes of Petropavlovskiy, Kantemirovskiy, Kalacheyevskiy, Verkhnemamonskiy, Talovskiy and other rayons to treat the plantings of beets and winter wheat with protective agents against pests and diseases.

At the same time, ground equipment first treated the edges of plantings and then the entire area with toxic chemicals against beet fleas and weevils.

## Intensive Spring Field Work

Moscow SELSKAYA ZHIZN in Russian 3 Jun 87 p 1

[Article by A. Trubnikov]

[Text] Orel Oblast--In the oblast as a whole, early grain crops and annual grasses were sown on 620,000 hectares in 7 working days and the fall-plowed fields were harrowed in 75 hours. One can judge the highly productive utilization of equipment by the fact that on the average they sowed from 74,000 to 80,000 hectares daily, one and a half times last year's rate. And this was achieved with the same level of equipment as last year. Many factors were in effect. For example, they doubled the number of two and three-sower units as well as of wide-coverage soil-cultivating implements.

The intensive field work is continuing during these days. The sowing of feed and hulled crops and the planting of potatoes are being completed. The care of the crops is in full swing. Whereas last year they harrowed 140,000 hectares of early spring crops, this year this agricultural method has been applied on more than half a million hectares. The care of the plantings of sugar beets and corn has begun.

Right now, they told me at the farms and rayons, significantly more could be done to increase the harvest and to improve the quality of output if the machine operators and workers of Gosagroprom were more helpful in equipping agricultural production. The following example was presented. The area planted in corn and cultivated under grain technology is increasing in the oblast. But there is an acute shortage of machinery for harvesting and grinding the cobs. The oblast is in a position to build storehouses for cuttings but there are no machines for the preparation of the cutting mass and its loading. There is also a shortage of equipment for the harvesting of leguminous crops, dryers and hemp cutters.

Last year the farms of the oblast significantly increased the yield of fields and overfulfilled the plans for the sale of all types of output to the state. This year the farmers of Orel intend to consolidate and increase the results achieved.

#### Kursk Kolkhozes and Sovkhozes

Moscow VESTNIK AGROPRONA in Russian No 19, 8 May 87 p 1

[Text] Kursk--Because of the late spring, almost all types of traditional spring work "came together" on the fields of Kursk kolkhozes and sovkhozes: harrowing and cultivation of the soil, supplementary feeding of winter crops, and sowing of spring crops and sugar beets. Rural workers are counteracting the existing difficult circumstances through a high degree of organization in the work: the sowing is taking place everywhere in two shifts, seed and fertilizer is being delivered to the fields strictly on schedule, and the tractors are being refueled only in the furrows. About 3,000 tractor drivers have come from Kursk and other cities in the oblast to help the kolkhoz machine operators.

#### Orel Sowing Finished

Moscow PRAVDA in Russian 15 May 87 p 1

[Text] Orel--The farmers of Orel were the first in the Central Chernozem to complete the sowing of early spring and fodder crops. The late spring delayed the start of the sowing campaign by almost 3 weeks. This required the best efforts of machine operators and specialists, a high degree of organization and mastery of the equipment. And Orel grain growers were successful in this. They sowed more than 600,000 hectares of spring fields in just 7 days.

#### Sowing Finished in Lipetsk

Moscow SOVETSKAYA ROSSIYA in Russian 10 May 87 p 2

[Text] Lipetsk--The farmers of Lipetsk Oblast had their first victory in the battle for the 1987 harvest. Yesterday the sowing of early grains, sugar beets and rape was concluded. A significant volume of work in a complex of tasks was done in the optimum time at a high level of agricultural technology. Rural communists helped to mobilize the collectives for shock labor. Party organizations took control of the agronomic, engineering, and cultural and domestic provision of the intensive work.

#### Krasnodar Organizational Problems

Moscow SOVETSKAYA ROSSIYA 9 Jun 87 p 1

[Article by F. Ivanov: "Not All Are Worried"]

[Text] Krasnodar Kray--A complex situation has developed in the kray in this sector of the sequence of field work. Frequent rains in May delayed the time for the procurement of fodder. Grasses are standing too long and

deteriorating. What is needed is efficient organization of the work and enterprising machine operators. Alas, by no means does the complex situation worry everyone.

In essence, for example, Primorskiy Kolkhoz in Shcherbinovskiy Rayon was not prepared for hay mowing. We are moving into June and here they have not yet oriented themselves to the work plan of the important campaign and cannot repair a machine unit for the provision of vitamin herbal meal that broke down last winter....

Because of organizational confusion and the low level of readiness of machinery, they are also slow in procuring fodder on a number of farms in Oktyabrskiy and Teuchezhskiy rayons of Adygeyskaya Autonomous Oblast.

#### Rains Increase Hay Yields

Moscow SOVETSKAYA ROSSIYA in Russian 12 Jun 87 p 1

[Article by P. Aleksandrov: "Despite the Rains"]

[Text] Voronezh--The copious May rains caused vigorous growth of annual and perennial grasses. The green harvest work has begun in many rayons of the oblast.

"This year we are really emphasizing hay," says A. Syanov, first deputy chairman of the oblast agro-industrial committee. "It was decided to procure 700,000 tons of it, must more than in recent years. For this purpose, we intend to utilize a number of innovations. Thus, the enterprises of agroprom have produced a large set of hay tedders. They are capable of dispersing moist swaths and of forming new ones. This significantly alleviates and accelerates the work, especially under bad weather conditions. Besides special pickup balers-stackers, the local handymen converted about 200 written-off grain combines for the procurement of hay. They will not only pick up the dry uncured mass but also load it in 40-cubic-meter carts and they will be delivered immediately to the site on the farms and complexes. The task has been set of mowing all areas that are difficult to reach and of taking no less than 80,000 tons of hay from them. We plan to involve the public extensively in this important work. In so doing, the farms will compensate the labor not only with money but also in kind."

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## KAZAKH MEAT PRODUCTION, PROCUREMENT PROBLEMS PROBED

Alma-Ata NARODNOYE KHOZYAYSTVO KAKAKHSTANA in Russian No 4, Apr 87 pp 72-76

[Article by I. Vorobev, candidate of economic sciences: "Problems in the Development of Meat Production -- Why is Meat Production Standing Still? What Can be Done by Subsidiary Farms at Enterprises and Private Subsidiary Farms? How Can Meat Resources be More Effectively Processed and Distributed?"]

[Text] I will begin with figures. On an average, during each year in the 11th Five-Year Plan all categories of farms in Tselinograd Oblast produced 77,300 tons of meat (slaughter weight), including 57,000 tons at public farms and 20,300 tons at private subsidiary farms. Is this enough. Is production at present levels sufficient for the population's growing demand for meat and meat products?

Yes -- if one counts only the oblast's demand. In 1985 per capita production was 94 kg, while the per capita consumption norm was 66 kg. However, as a component of the national economy, the oblast of course participates in the creation of countrywide and republic food stocks. When such deliveries are included, the present per capita consumption of meat and meat products is below rational norms. For this norm to be approached in the immediate future without reducing deliveries to centralized stocks, there must be a substantial increase not only in meat production volumes, but also improvements in its processing at all subsequent stages in the processing chain, including sales of finished products. These are not simply nice wishes. Research shows that there are reserves everywhere which must be fully used. We will examine some of them.

During the 11th Five-Year Plan meat production in Tselinograd Oblast increased from 79,000 to 80,000 tons (slaughter weight), that is only by 1,000 tons. What is more, this was mainly through private subsidiary farms. Sovkhozes and skolkhozes produced 600 tons less than last year.

The question naturally arises: Why is public production of meat standing still and even declining? The answers, alas, are not new. One of them is the absence of a sufficiently dependable and complete feed base.



One can have good breeds of animals, high degrees of production organization and well equipped farms, but if there are not enough complete feeds, then one cannot think about high animal productivity.

What is the condition of the oblast's feed base? In the 11th Five-Year Plan feed straw availability was 99 percent of the plan, while in the 10th it was 94 percent. For hay the figures were 85 compared to 94, for succulent feeds -- 68 and 77 percent, for concentrates 34 percent in the 11th compared to 58 percent in the 10th. As a result, the overall availability of feed units (not taking quality into account) declined by 11 percent. Understandably, there could be bad results from the feed base not being appropriate to an increasing herd. This is fully supported by statistics. The average daily weight gain for cattle declined from 295 to 276 grams and the average delivery weight from 358 to 340 kilograms. Production costs per quintal of weight gain increased from 260 to 330 rubles for cattle, from 212 to 270 for swine and from 223 to 272 for sheep. At the same time there were increases in the outlays for labor and materials.

It should be stressed that in recent years there has been an increase in the percentage of coarse and succulent feeds in animal rations. This, of course, is sufficiently well founded. However, it should not be forgotten that while decreasing the percentage of concentrated feeds there should be improvements in the nutritional value of coarse and succulent feeds while grain forage should be processed into complete mixed feeds. Only if this is done can one seriously count upon improvements in animal productivity. There is an urgent requirement to improve the cropping structure for feed crops, increasing the percentage of pulse crops, mangel-wurzels and other higher yielding crops.

There are especially great possibilities for increasing forage through the intelligent use of irrigated land. The amount of such land in the oblast is steadily increasing and is now up to 33,000 hectares. It is planned to use at least 24,000 hectares for feed crops.

This is the correct step. Moreover, there is positive experience in obtaining high yields in the oblast. Every year 350-400 quintals of mangel-wurzels are obtained from each irrigated hectare at the Krasnoyarskiy Sovkhoz in Tselinogradskiy Rayon. At the Sovkhoz 40 Years of Kazakhstan they obtain 40-45 quintals of feed units from each of 847 hectares. Alfalfa green chop yields reach 450-500 quintals. These are excellent results for this place! However, for the oblast as a whole, the percentage of legumes is still clearly too low: less than 10 percent.

I want to stress that when reducing grain forages' share in rations one should not go to extremes. Practical experience shows that this always results in large shortfalls in output and increased production costs. Our calculations show that 65-70 percent of the annual requirements for concentrates is a minimum, the violation of which means a threat to animal productivity. Given the existing ration structure, concentrates are still the main source of protein.

Unfortunately, in actuality, especially in years with poor harvests farms are left with practically no grain forage. Thus, in 1981-1982 they only had 20

percent of requirements, and in 1983-1984, only 16 percent. In Balkashinskiy Rayon the figure was 7 percent, in Atbasarskiy -- 9 percent and in Makinskiy -- 11 percent. This, of course, is lower than any limits.

We note that there are more hogs (345,000) in Tselinograd Oblast than in any other oblasts in northern Kazakhstan. Concentrated feeds comprise the basic share of their rations.

In such a course the priority remains essentially not that of increasing animal productivity, but in retaining herd size, i.e. it is not an intensive, but an expenditures technology. One can understand the dissatisfaction of farm managers who had to sell barley at 50-60 rubles a ton in order to fulfill the plan and then had to purchase concentrates three times more expensive.

In this regard the processing of all grain forage into complete mixed feeds is becoming ever more urgent. All the more so because the oblast's mixed feed industry is insufficiently developed. Only 7 rayons have mixed feed mills with hourly capacity totalling 30 tons. Due to this, even though there is a big shortage of grain forage, only 16 percent of it is consumed in the form of mixed feed, the remaining in the form of ground feed. This reduces assimilability and returns from grain by 20-25 percent. Such a practice is nothing but the conservation of outlay technology in animal husbandry.

A solution to this problem is the immediate construction of interfarm mixed feed enterprises (mills) with the appropriate capacity in each administrative rayon. It is advisable to have them close to elevators.

As is known, returns from forage depend to a considerable extent upon its preparation for feeding. Attempts to provide incomplete coarse and succulent feeds without high protein and energy additives cannot be the basis of intensive animal husbandry. Everybody knows this, however, the situation leaves something to be desired. Feed can be chemically processed only at 52 out of 260 feed mills and pelletized at only 29. The overwhelming majority of them are primitive and intended only for mixing straw with silage and for chopping coarse and long strawed feeds. However, even such "do it yourself" units are clearly insufficient. During the period of research farms in the oblast were 147 feed mills short.

Understandably, with such a weak base it is difficult to realize the potentials of highly productive young animals raised in the oblast or hauled in from outside it. During 1981-1985 the Balkashinskiy Gosplemzavod [State Breeding Plant], the Novonikolskiy Plemsovkhoz and 18 breeding farms [fermy] sold kolkhozes and sovkhoses in the oblast 41,300 head of young cattle. Also, 34,900 head of cattle, 46,700 swine and 54,100 sheep were brought from the RSFSR and other oblasts in our republic. As a result, all such animals in our oblast are either purebreeds or their crosses.

These are not simply words, but reality. It is no accident that in 1985 70 cattle raisers obtained more than 500 gram average daily weight gains from the animals assigned to them. Five of them obtained more than 900 grams, 17 -- 800 grams and 12 more than 700 grams. V. P. Shumarkin and A. I. Valyaev from the Balkashinskiy Gosplemzavod increased this to 963 and 940 grams. Such is the

productivity attained by available animals. This only involves organizing feeding and supplying feeds.

It is worth noting that capacity in the oblast permits increasing meat productivity by 30-35 percent ( only 38 percent is utilized in Kurgaldzhinskiy Rayon and only 59 percent in Shortandinskiy). Cattle feedlots in the oblast are only 52 percent full and swine feeding operations only 50 percent. This means that a sizable share of the buildings, machinery and equipment is frozen capital. This is contrary the animal husbandry intensification program.

One of the reasons is the acute shortage of animal husbandry workers. During 1985-1986 the oblast was short 4,037 such workers, including 2,028 cattle hands. There is especially low availability of cadre in Kurgaldzhinskiy Rayon (56 percent) and Shortandinskiy Rayon (68 percent). A pattern has quite distinctly appeared: the greatest worker shortage is in areas where not enough housing and social and personal service facilities are being built. In the past two five-year plans it has been in these rayons that the fewest houses for rural dwellers have been built. During the 10th Five-Year Plan an average 39,400 square meters of housing were built in each rayon in the oblast, in Kurgaldzhinskiy Rayon the figure was 17,700 and in Shortandinskiy Rayon -- 21,600. During the 11th Five-Year Plan the oblast average per rayon was 47,000, in these two rayons the figures were 32,000 and 38,000 square meters.

Today there is no need to show the importance of social factors. It is time to get on this. For the sake of justice it is necessary to say that advances are already being noticed in the oblast. In 1985 more than 31 million bricks have been made at the 32 farms with brick factories. Their production increased 3.5 fold in the 11th Five-Year Plan. It is intended to put another 20 factories into operation during the 12th Five-Year Plan. Annual brick production will increase to 60 million. Consequently they will be better able to solve social problems. But today the word "better" is not a criterion. It is necessary to do everything to assure that each family on a kolkhoz or sovkhos has an apartment, or better, a house with a plot, outbuildings and modern household conveniences. Live has shown that one can have the most productive equipment, land, good breeds of animals, but if there is not enough of the main productive force -- people -- the desired results cannot be achieved.

We will attempt to sum up what has been said. Today we are convinced that there are two main factors which delay increases in animal product output: a weak feed base and a shortage of labor resources. In addition to organizational measures, this consequently requires the reorientation of capital investments. Money should above all be invested in the construction of housing and social service facilities and in feed production and preparation.

In Ealkashinskiy Rayon average annual meat procurements in the 11th Five-Year Plan increased by almost 30 percent over the 10th, and milk procurements increased 22 percent. This is no accident. In 1981 a comprehensive plan was compiled here to improve agricultural land use, the development of feed production, the strengthening of the material-technical base for animal husbandry and the use of progressive technology for the intensive production of animal products.



The cropping structure for grain and feed crops was reexamined. Legumes occupied up to 46 percent of all area devoted to perennial grasses. Annual grasses were primarily Sudan grass, feed millet and Italian millet [*Setaria italica*]. During the time animals are kept in their stalls 25 feed mills prepare 120,000 tons of feed mixtures enriched with protein and vitamin additives. Calve rations have growth stimulants and vitamin additives.

In meat animal production provisions are made for animals to be born during December-March. In hog raising the *turovaya* [not further identified] system for obtaining piglets is used. During the 11th Five-Year Plan cattle loss was reduced by 3,200 head, so 1,200 tons of additional meat were procured. Average daily weight gain for beef cattle increased from 360 to 500 grams.

The experience at the Pobeda Sovkhoz deserves attention. Piglets here are kept in nondetachable deep pens and fed in outdoor lots. The results from 5 years of work are not bad: 545 gram average daily weight gain and 125 kilograms of meat per head. The collective works by the brigade contract method, the five-year plan for meat sales was fulfilled in 4 years and the profit rate was 88 percent.

All these measures are combined with concern about people. In 1984 15 houses were built for animal husbandry workers. These have cafeterias, recreation rooms, showers and medical clinics. Understandably, animal husbandry cader availability here is 100 percent.

The experience at Balkashinskiy Rayon is evidence of the big possibilities available to each rayon in Tselinograd Oblast and the great potentials for increasing meat production at kolkhozes and sovkhozes.

We will now turn attention to the population's private subsidiary operations as sources for meat production. These are quite great and account for about 26 percent of the meat balance. However, their possibilities are far from exhausted.

There are 12,000 families in the oblast who do not keep their own household livesock, 15,000 do not keep cattle and 20,500 do not keep cows. It is cause for concern to note the increase in the number of families not keeping cattle.

There is no denying that this is an undesirable process, especially now, when meat consumption is more than 60 percent supplied by private subsidiaryfarms.

The main difficulty is poor feed supplies for livestock. True, in 1985 workers and employees on sovkhozes in the oblast were sold more than 78,000 tons of hay and 60,000 tons of straw, but these are drops in the ocean.

Rational production ties have been established between public production and the private subsidiary farms at the Yerkenshilinskiy Sovkhoz in Yermentauskiy Rayon. In 1985 meat purchases from the population here totalled 599.4 tons, a 4 fold increase over 1981. Such sizable growth was possible through the sovkhoz's constant concern about private subsidiary farm development. The sovkhoz guarantees that each family, whether or not it has a member working on the sovkhoz, can annually purchase 2 tons of hay and the



amount of straw it needs. Machinery operators earn (as payment in kind) 1 ton of grain, and (if possible) all workers and employees receive at least 2-3 quintals of grain wastes per family.

Purchases of surplus meat and milk are on a contract basis. The sovkhos has also introduced the position of deputy director for private subsidiary farms -- a specialist in animal husbandry. Payment for procurers' labor depends upon final results. A fixed rate of 60 rubles has been set, but they are paid an additional ruble for each quintal of livestock received from the population.

Accounts with animal product suppliers have been put in order. The farm bookkeeper transfers money to suppliers' savings accounts. The feed supply procedure is also regulated. Depending upon orders sent to the dispatcher, feeds are hauled, using sovkhos equipment, to workers' and employees' households. There are return sales of motor vehicles, motorcycles and other goods in high demand.

Of course, experience at the Yerkenshilikskiy Sovkhos is not ideal, but it is one of the real examples of the convergence in the interests of two types of farms: public and private subsidiary. It shows that mutual interest can be the basis for considerable increases in animal product output.

One should also stress the results from this promising form of work with the population of sovхозes and rayon centers: contracts between farms, consumer cooperatives and private subsidiary farms for the latter to feed hogs, sheep, cattle, horses and other types of livestock and poultry. Studies show that in the oblast there is a realistic possibility of using this method to feed an additional 50,000 - 60,000 hogs annually.

Here also there are possibilities for increasing the productive employment levels for second members of families, substantially supplementing family budgets. Again this obviously combines private and public economic interests -- a decisive element in restructuring.

Subsidiary farms at non-agricultural enterprises account for a small share (2.3 percent) of the oblast's meat balance. However, here also there are big reserves for increasing meat production. The results have not been bad at enterprises setting up comparatively large farms (the Kazzoloto [Kazakh Gold] Combinat, with a capacity of 445 tons). However, smaller units can also make a marked contribution to the Food Program.

Experience shows that such subsidiary farms are not only vital, but also profitable where their organization is not approached just in a formal manner and they are given constant attention. At the subsidiary farm of the Atbasarskiy Meat Combinat meat output per worker is 45 kg, at the Alekseyevskiy Remzavod [repair plant] 40, the Tselinnaya Geological Expedition -- 30 kg. As a rule, production costs are at kolkhoz and sovkhos levels, and sometimes even lower.

Probably even those who are far removed from the problems of raising livestock have some idea of this work's labor intensiveness. Less is known about the labor, time and resources involved with procurement operations, processing the

animals and distributing meat and meat products. Calculations show that on the average farms spend up to six percent and more of total meat production costs on delivering animals to processing enterprises. How can these essentially unproductive expenditures be reduced?

A solution to the problem is seen in the very rapid conversion of farms to a system of direct ties with meat combinats. It can be said that the problem is not new, that much has been said and written about it, but what is to be done: It is only being slowly solved. One simply not get around it.

What is hindering its rapid solution? There are many reasons. These include weak material-technical bases at some processing enterprises, a shortage of specialized trucks and trailers, the lack of hard surfaced roads in remote regions. To this can be added indecisiveness about drivers' material interest in quickly delivering livestock, the large size of raw material zones and widely scattered processing enterprises.

The raw material zone for the Tselinograd Meat Combinat includes 111 farms, for the Atbasarskiy -- 43, the Aleskeyevskiy Slaughter Point -- 30 and the subzone for the Temirtau Combinat -- 10 farms. The grouping of settlements by distance from combinats shows that in these raw material zones only 70 farms are within 100 km, 50 up to 150 km and 36 up to 250. Fifteen farms transport animals more than 250 km. Consequently, in addition to other conditions, the general conversion to centralized animal transportation requires reducing the size of existing raw material zones, bringing meat processing enterprises closer to livestock production to avoid large losses and to reduce transportation expenses.

Taking into account demand during the forecast period, the capacity of processing enterprises in the Gosagroprom system should be expanded: the Tselinograd Meat Combinat -- to 60,000 tons annually, the Atbasarskiy to 40,000 tons and the Alekseyevskiy Slaughter Point to 20,000 tons annually. Shift productivity (with an estimated 500 shifts annually) should be 120, 80 and 40 tons respectively, or double that at present.

The estimated economic effect (just through reducing the raw material zones and transportation expenses) will be more than 250,000 rubles annually; from reductions in animal live weight while being hauled -- 1.3 million rubles (the calculations assume a 2 kg average loss per head for cattle and 0.5 kg per head for sheep and hogs. It is, at the very least, unadvisable to continue to let such gains escape.

In addition to the development of enterprises in the Gosagroprom system, there are also provisions to increase, to 16,000 tons, livestock processing in the consumer cooperative system during the forecast period. This will also help "take the strain out" of the situation.

The Tselinograd Poultry Combinat, producing 6 tons of meat products per shift, is already in operation. Very importantly, the enterprise is using waste free technology. It produces up to 20 types of preserved meats and other items. Its construction costs were not large, project costs were 360,000 rubles. In 1987 a poultry combinat producing 1.5 tons of meat products per shift will be built

in Atbasar. It is intended to build similar ones in Balkashino and Makinsk. Capacity at the poultry combinat now being built in Rozhdestvensk will be 3 tons of finished products per shift. Thus, even by this year the shift capacity for poultry at these enterprises will reach 13.5 tons.

The suggestion to build sausage making shops directly at farm slaughter points (and there are more than 100) deserves support. At such subsidiary shops one could not only process meat for food service operations, but also process animals supplied by the local population. This will simultaneously solve social and economic problems.

According to data from specialists at meat processing enterprises, the thorough processing of the product reduces meat use during such processing by 15-20 percent. Given the presently forecast volumes of meat consumption this is equivalent to 5,000 tons (slaughter weight) of meat. How much is this? Almost as much as is sold at markets to be used for farm needs in rural areas. This is a good reason for doing this without delay.

Setting up small processing shops right at farms would substantially reduce animal loss. In 1985 cattle losses (primarily young animals) reached 15,400 head, swine -- 16,700, sheep -- 58,200 and horses 1,300. Farms suffered the direct losses. These animals could and should have been utilized.

As is known, today the meat produced at private households reaches the customer through three channels: sovkhoses, kolkhoses and other state enterprises purchasing livestock from private subsidiary operations; consumer cooperatives; and the livestock owners themselves through free sales. Meat in the first is sold at state purchase prices, in the second at contract prices, the lower margin of which determining the upper margin for state purchase prices. In its turn, the lower margin for market prices are oriented towards the upper margin for consumer cooperative prices. Is this necessary?

It makes sense to use an already proven experiment, namely the Omsk variant for purchasing surplus agricultural products, in particular meat, produced at private subsidiary operations. Here all surpluses are purchased only by procurers at consumer cooperative. The latter's functions include organizing meat product processing and trade at oblast and rayon centers and at farms. Here are the results: beef prices in the oblast do not exceed 3 rubles 50 kopecks per kilogram, while oblast meat and meat product sales in the oblast reached 70 kilograms per urban inhabitant annually.

This was possible thanks to a fundamental decision: farms fulfilled state plans by developing their own animal husbandry, and not purchasing livestock from private subsidiary farms.

What hinders us from adopting this experiment? The answer is simple: today sovkhoses, kolkhoses, rayons and the oblast fulfill a good quarter of their plans for meat deliveries to the state by purchasing it from the population.

Need it be said that this course does not orient sovkhoses and kolkhoses towards finding reserves for increasing animal product output at public farms?

It is no accident that on the average on each of 4 years during the 11th Five-Year Plan sovkhoses in Tselinograd Oblast purchased 58,100 head of cattle from the population, this is 36 percent of all animals delivered to meet combinats. Some farms fulfill one-fourth, one-half and more of their meat procurement plans through just this source. Meat procurements from the Sovkhoz imeni Amangeld in Kurgaldzhinskiy Rayon for 4 years of the 11th Five-Year Plan were 749 tons, only 24 percent of which was produced at public farms. Can this be considered normal?

Understandably, in a short journal article it is not possible to cover all aspects of such a complex and multifaceted problem. However, what has been said is obvious evidence of the huge reserves for producing meat and meat products. One can boldly state that they are sufficient to fully make deliveries to centralized stocks and to satisfy scientifically based norms for the population in each oblast.

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## QUALITY IMPROVEMENT SOUGHT IN MIXED FEED PRODUCTION

Moscow MUKOMOLNO-ELEVATORNAYA I KOMBIKORMOVAYA PROMYSHLENNOST in Russian No 4, Apr 87 pp 2-7

[Article by E. Verkauskas, chief of Glavkombikorm [Main Administration of Mixed Fodder Industry] of the USSR Ministry of Grain Products: "High-Quality Mixed Feed to Animal Husbandry"]

[Text] In putting into effect the decisions of the 27th CPSU Congress, the mixed feed enterprises of the USSR Ministry of Grain Products went over to new conditions of management in 1987. A great deal of preparatory work has been done. An economic foundation is being established for the achievement of a high rate of growth of production, labor productivity and profit and for reducing the production cost of output. A gradual transition is being made to economic methods of management.

There must be a substantial change toward a fundamental improvement in the quality of output, which today determines the conditions for acceleration and the reserves for production intensification and appears as a basic factor in evaluating the labor of any labor collective.

The large-scale measures adopted by the party to raise the quality of output are gathering momentum all the time. The results of the work in 1986 are convincing evidence of this. The rate of growth of agricultural output was almost double the average annual level for the targets in the five-year plan. Purchases of livestock and poultry, milk and eggs increased.

The labor collectives of the mixed feed industry are also contributing to the fulfillment of the Food Program. The ministries of grain products of all union republics overfulfilled the plans for the production of mixed feed, BVD, premixes and carbamide concentrate. For the first time, they fulfilled the plans for the production of output in granulated form and for the introduction of capacities through the construction of new enterprises and the reconstruction and technical reequipping of enterprises now in operation.

Losses of raw materials and mixed feed are continuing to decline. The material-technical base of industry is developing, the operating level of enterprises is rising, and idle time was reduced almost in half. The quality

of the output of most mixed feed enterprises improved. It was on this basis that the second year of the five-year plan began.

But there were many shortcomings and errors last year and, so as to avoid them in the future, it is necessary to draw lessons from what has been done, to rethink one's views, assessments and approaches, to become aware of the meaning of one's own work, and to utilize all that is progressive to increase the efficiency of production.

Today in every republic and almost in every oblast, besides advanced enterprises for mixed feed, there are also those that are lagging behind. There is one thing that is characteristic of all these enterprises and that is the lack of discipline and order and the lack of concern for the establishment of the main thing--the necessary social conditions for workers.

Last year almost all mixed feeds that the USSR Gosstandart rejected for quality were produced under a violation of technological discipline. The greatest relative share of such enterprises is in the mixed feed industry of the ministries of grain products of the Armenian SSR, Tajik SSR and Latvian SSR. The situation with respect to the quality of finished output was unsatisfactory at a number of mixed feed plants of the Ministry of Grain Products of the RSFSR, whereby at several of them it even declined in comparison with 1985. These are the enterprises of the Altay, Voronezh, Kurgan, Stavropol, Volgograd, Gorkiy, Kirov, Omsk and Tambov grain products administrations. Tendencies toward an increase in the output of poor-quality mixed feeds were also noted at several enterprises of the Ukrainian SSR Ministry of Grain Products.

With the transition of enterprises to new management conditions, fines for the production of substandard output will be paid out of that part of the profit that forms the economic incentive funds. What position will the plant director and the collective that he manages be in if one-third of the funds entered for the year are excluded from the economic incentive fund because of the production and sale of substandard mixed feed?

One can present many instances of the inadequate discipline, professional unpreparedness and negligence of individual managers in questions of the production and delivery of poor-quality output. The only conclusion is that a comprehensive resolution of the problem of raising the quality of mixed feeds requires painstaking and purposeful work at all levels of production, from the workplace at the enterprise to the leading ministry workers. We will analyze the basic directions of this work.

#### Accelerate the Reconstruction and Technical Reequipment of Enterprises

Over the years of operation, the capacity of a number of plants increased through the replacement of some equipment but individual lines and technological sections have bottlenecks and do not permit the production of mixed feeds according to special formulas for the young animals of livestock breeding complexes and for poultry. The existing production areas are small for the placement of contemporary highly productive equipment. Nevertheless,

with the proper discipline and more attention to the operations of such enterprises, they are able to ensure the production of standard output.

Last year a long-range plan was drawn up for the renewal of the fixed capital of mixed feed enterprises. It is planned to reduce the level of utilization of heavy manual labor and to release more than 12,000 people, to double or triple the labor productivity and the capital-labor ratio, to increase the power-worker ratio by 16.2 percent, and to reduce expenditures per ruble of commodity output by 2.9 kopecks while increasing the average monthly wage by 35 percent.

The development of planning estimates and the technical reequipment and reconstruction must be carried out essentially through enterprise development funds and credits from the USSR Gosbank.

The reconstruction must be carried out in stages and at an accelerated pace without lengthy pauses by the enterprise. The practice of the kind of reconstruction that was carried out at the mixed feed plants in Vologda during the course of 8 years and in Rzhev in Kalinin Oblast for 7 years must become a thing of the irrevocable past.

For the purpose of raising the quality of output, specialists from the All-Union Research Institute for the Mixed Feed Industry and planning institutes as well as a large group of the scientific-technical public worked out and last year sent to the localities the basic directions for the accelerated introduction of the achievements of science and advanced experience in the improvement of technology and in the mechanization and automation of operating mixed feed enterprises.

It should be noted that at the present time in the reconstruction and technical reequipment of plants not much is being done to utilize the developments of research and planning institutes and the advanced domestic and foreign experience in the improvement of the technological processes in the production of mixed feeds for the purpose of raising their quality. Thus, the authorities of the USSR Gosstandart often reject the output of mixed feed enterprises because of violations of the coarseness indicators. This in particular involves enterprises producing output for swine breeding complexes. As a rule, these plants utilize the single-stage crushing of components, which has a number of significant shortcomings--the penetration of large particles into the finished product when the sieves of the hammer crusher rupture, the high specific energy consumption, the excessive crushing (large number of dustlike fractions) and others.

The lines for the preparation of flour and protein raw material as well as small shot at many enterprises do not utilize such a simple method as preliminary sifting with the subsequent regrinding of trimming fractions, which, in addition to increasing the quality of output, makes it possible to reduce the specific consumption of electric power for the preparation of components.

At most enterprises, there is no provision made for the refinement of protein, mineral and flour raw material from impurities, which is essential for

ensuring safety against explosions and fires and for the production of standard output; the series sifting machines A1-DMK and A1-DMP-20 are not being ordered.

An inspection of a number of plants of the ministries of grain products of the RSFSR, Armenian SSR, Belorussian SSR, Georgian SSR and Latvian SSR showed that in the shift changes here an average of about 1.5 to 2 hours are lost for the preparation of components for dosing. Under the system in effect at these enterprises, the shift leaves the hoppers over the dosing apparatus empty. These leads to the fact that, in striving to fulfill the shift target, the brigades reduce the time for the mixing of the components both in the formation of the preliminary mixtures as well as finished mixed feeds to 2-2.5 minutes or even less. In so doing, they do not make use of the effective solution widely applied at the enterprises and recommended by the Institute for the Mixed Feed Industry--the installation of two parallel or tandem mixers under one battery of multiple-component weighers. This matter is also being realized successfully through the organization of integral-process brigades.

Today it is acknowledged to be economically and biologically expedient to produce all mixed feeds in granulated form only. A permanent standard has been introduced for allocations to the economic incentive funds for each percent increase in the production of granulated mixed feeds. Additional allocations are also foreseen for the production of output of a higher consumption quality in the form of granules or grist.

Through output of an increased consumption value, it is considered advisable to affirm mixed feeds for broilers in granules or in the form of grist, for chicks in the form of grist, and for calves and swine raised on complexes, pedigreed animals and poultry, and highly productive cows in the form of granules as well as extruded grain and mixed feeds with it. In the 12th Five-Year Plan, it is planned to increase the production of mixed feeds in the form of granules to 40...50 percent. To accomplish this task, it is essential to do considerable work not only in the fundamental improvement of the utilization of the existing capacities but also in the restructuring of the attitude of collectives toward the increase in the production of this output.

As you know, the 8 to 10 percent increase in efficiency through the feeding of granules is achieved only when there is strict observance of the moisture and heat treatment of mixed feeds foreseen in the process of granulation. Often, however, the quality of the granules does not meet the demands of the operative standards and mainly for the following reasons. At some enterprises, the parameters of the steam utilized in the granulation do not correspond to the recommendations: pressures of 3.5 to 4.0 atmospheres are not maintained, the temperature of the steamed mixture is 70 to 90 degrees Celsius, the treatment is not with dry but with saturated steam, and its consumption is reduced unjustifiably, by half in many cases. The nonobservance of the steaming processes often leads to the shrinkage of the product and as a result to significant losses.

In connection with the violation of the processes of the steaming and crushing of granules and because of the fact that hulled grain is frequently used, the indicators of the quality of grist do not always meet the requirements of OST



8-6-73. It is necessary to eliminate these deficiencies with the help of measures aimed at fulfilling the requirements of operative standards and not by requesting a revision of quality indicators. It is essential to remember that in raising the relative share of mixed feeds in granulated from 21 to 55 percent (countrywide average), at just one plant with a capacity of 630 tons a day one can obtain an additional 1,700 tons of broiler meat per year or 330,000 eggs or 1,000 tons of pork through the increased digestibility of the feed. In addition, granulation is also advantageous from other positions. Only two-thirds as much storage capacity is needed, losses decline by 0.02 percent, and the output yield increases by 0.4 percent through humidification and the reduction of losses.

The digestibility of mixed feeds with extruded components increases by 9 to 10 percent, which means that this is also the amount of the weight gains of the animals and of the reduction in feed expenditures.

There are also reserves for raising the quality of mixed feeds for fish. In accordance with the recommendations of the Research Institute for the Mixed Feed Industry, just by improving the technology of crushing, with a reduction of the coarseness of the particles of mixed feeds from 1.2 to 0.66 millimeters, the stability of the granules in water increases by a factor of 2.5. The utilization of these granules reduces feed losses in the water and increases the digestibility of the feed by the fish, making it possible to obtain 20 to 25 percent additional output, that is, 1 out of 4 kg of fish will be obtained with no additional expenditure of feed, entirely through the reserves of technology.

The establishment of the necessary conditions for the acceptance, storage and delivery to production of raw material is also one of the importance ways to raise the quality of mixed feeds. In all regions of the country, there are more deliveries of meat and bone meal in MKh-1.5 rubberized-cord containers and of fish in MKR containers. But not all mixed feed enterprises are preparing for this, even though the experience of many years has already shown that the utilization of containers for meat and bone meal reduces labor input by 20 percent, or 10 rubles per ton, raises labor productivity by 60 to 70 percent and--the main thing--improves working conditions, contributing to a more precise observance of the formula.

There is advanced experience in reconstruction and technological reequipment: in the mechanization of the unloading of raw materials that are difficult to pour and internal warehousing operations at the Gatchinskiy Mixed Feed Plant in Leningrad Oblast, in the preliminary dosing of components requiring crushing and in the introduction of automated systems for the control of technological processes at the Ramenskiy Grain Products Combine, in the modernization of technological equipment and the introduction of a comprehensive system for the standardization of the consumption of electric power at the Bolshevskiy Mixed Feed Plant, in the improvement of the work of suction equipment at the Belgorod Mixed Feed Plant, and at other enterprises.

In the coming five-year plans, it is planned to construct a large number of new mixed feed plants of different productivity under standard designs corresponding to the contemporary technical level and demands of the high

degree of organization of production. The new equipment and progressive technology make it possible to make significantly better use of the good feed qualities of individual components and mixed feeds as a whole and to raise their efficiency by 10 to 15 percent, that is, to organize the production of output of a higher consumption value.

Last year the planning documentation was reviewed for all mixed feed plants under construction and going into operation during the 12th Five-Year Plan. In so doing, first of all, attention was paid to raising the technical level of the planned enterprises.

#### Raise the Demands on the Quality of Raw Materials and Ensure Their Economic Utilization

The reduction of the content of grain in mixed feeds and the economic utilization of the available feed resources is a major task for the national economy. One of the ways to resolve this task is to utilize local resources of nongrain raw materials for the production of mixed feeds. The experience of past years shows, however, that locally they not only are not utilizing the available resources but are not even providing for the receipt and utilization of raw material allocated from stocks. This applies to meat and bone meal, dry skim milk, dried beet residues, molasses and other types of raw material. In the 11th Five-Year Plan, the mixed feed enterprises of the USSR Ministry of Grain Products received almost 1 million tons of herbal meal too little but they presented very few valid claims against suppliers.

Nor is the work of APK partners to fulfill the plan for purchases of oil-yielding and leguminous crops being performed as it should and this has a negative impact on the provision of the enterprises with protein raw material from plants. All of this is the result of the poor organizational work of the ministries of grain products of the union republics in strengthening the discipline of deliveries on a contractual basis. For example, the ministries of grain products of the RSFSR and Kazakh SSR do not enter into contracts for the delivery of almost all types of raw material, considering that the sent schedules of allocations attain the force of a contract. Meanwhile, such a system does not give the right to apply economic sanctions against suppliers.

The secondary raw materials of different production systems are poorly utilized. For example, more than 11 million tons of dry whey are produced in the country every year and practically all of it is returned to agriculture. Only the mixed feed industry of the Latvian SSR uses it and in a volume of only 800 to 900 tons a year. Other republics do not deal with this matter at all.

The overall work being performed by the republic and zonal production laboratories of the mixed feed industry to strengthen the control over the quality of the raw material being delivered made it possible to reduce the inflow of substandard raw material by 10 percent in 1986, mainly through the imposition of economic sanctions against suppliers. Heretofore, however, a number of laboratories are not providing the necessary help to enterprises in imposing legal sanctions against suppliers, raw materials is not rejected but

laboratories merely verify instances of the inflow of substandard raw material. Or what is even worse: it happens, for example, that the slightly toxic hydrolytic yeast frequently delivered are acknowledged to meet the standard for this indicator. In the entire year, only two batches of yeast were rejected by the Belorussian Republic Laboratory, even though, according to the standardized technical documentation, each batch of this raw material is supposed to be tested for toxicity.

There has not been an instance when even 1 of the 32 republic and zonal laboratories stopped production for reasons relating to the release of output of low quality. They determined only 10 percent of the total volume of mixed feed checked to be substandard output. The necessary demands on the enterprise managers were not made, however.

The managers of several enterprises are forcing their technical chemical control services to cover up revealed rejects. The Karasuyskoye Enterprise in the Kirgiz SSR can be presented as an example. Knowing that the produced mixed feed for fish was substandard, the chief of the PTL and director of the enterprise gave permission for its release instead of firmly and systematically defending state positions. The republic's People's Control Committee gave the careless workers what they deserved.

The laboratories of the Khabarovsk, Leninsk and Komsomolsk grain products combines in Khabarovsk Kray have not performed any chemical checks of raw materials and output since 1984 because of the lack of water and sewage. The picture is analogous at individual enterprises of the Kokchetav, Kustanay and Severo-Kazakhstan grain products administrations and the laboratory at the Mary Grain Products Combine in the Turkmen SSR allowed the release as standard mixed feed of output produced without the dosing and mixing of components.

The observance of the requirements of veterinary health rules is one of the major reserves for raising the efficiency of production and its technical standards as well as for safe working conditions, the full preservation of the quality of raw material, and the sanitary cleanliness of mixed feeds. Up to the present time, the ministries for grain products of the union republics have been exercising very poor control over the observance of these rules. Their violation is noted at almost every enterprise. An unsanitary state of the areas, receiving and shipping installations, and warehouses and the incorrect storage of raw material were noted at the Frunzenskiy, Ivano-Frankovskiy and Ustinovskiy (Udmurtskaya ASSR) grain products combines, the Pavlovskiy Mixed Feed Plant in Gorkiy Oblast and the Kalityanskiy Mixed Feed Plant in Kiev Oblast. Many such examples could be presented and they must be characterized not as shortcomings and omissions but as cases of irresponsibility and negligence. The leading workers of ministries, grain products administrations, and republic and zone laboratories repeatedly visited these enterprises but no measures were taken. But the indifference of managers corrupts people and teaches them to be uninterested in the quality of their own labor and of the output produced.

In recent years, in connection with the increased number of indicators forming the quality of the mixed feeds produced as well as the complexity of their laboratory control, certain difficulties appeared in the organization of



technical chemical checks at mixed feed enterprises. To resolve the questions that have arisen, an experiment is being carried out at three plants--in Kapsukas in the Lithuanian SSR, in Bolshevo in the RSFSR, and in Kishinev in the Moldavian SSR. It is based on self-regulation by the production personnel on the basis of collective and personal responsibility for the quality of output, collective economic incentives, and the evaluation of labor (brigade contracts). The restructuring of the work makes it possible to exclude laboratory control for a number of indicators, simultaneously increasing the reliability of technology and the quality of output.

In January 1987, a new system was introduced for the formation of the assortment and quality of mixed feeds. All raw material is allocated to the councils of ministers of the union republics and ministries of grain products. At the same time, the councils of ministers of the union and autonomous republics, oblispolkoms and gosagroproms are given full responsibility for providing animal husbandry with high-quality concentrated feeds and for their rational utilization. They will determine the assortment of mixed feeds and BVD taking into account the proposals of local soviet and economic authorities. They are also obligated to make extensive use of local raw materials for the production of this output.

In connection with the prohibition from here on of deviations from the standards for mixed feeds and BVD, GOST 27103-86 "Unbalanced Mixed Feeds and BVD" was introduced to remain in effect until 1 January 1991. But in accordance with this GOST, mixed feeds and BVD can be produced only as exceptions. The volume of production of unbalanced mixed feeds must continually be reduced and will be considered separately. In addition, the work of the ministries of grain products of the union republics in the utilization of local raw materials, especially protein, will be evaluated in accordance with the volume of production of unbalanced mixed feeds.

#### Improve the Organization of Production

There are many advanced enterprises in the sector whose labor collectives are continuously improving the technological and production discipline of labor. But the work to improve quality, discipline and order has not yet become the daily concern of every labor collective.

A check of the Keyla Mixed Feed Plant in the Estonian SSR showed, for example, that the shop for preliminary mixtures is not providing for the automatic work of the unit for dosing and mixing and that the technological process is being disrupted. Not a single cleaning machine is working on the grain raw materials line in the production building. Of the two mixers installed one after another, one is in working order. The line for the delivery of salt and the suction are not working. The planned schedules for the accomplishment of shutdowns at 10-day intervals are not being observed.

In 1985, at the Kapchagay Mixed Feed Plant in Alma-Ata Oblast, the authorities of the USSR Gostandart rejected output amounting to 83,000 rubles. How did the plant work in 1986? At the end of the year, only one of the four presses at the plant were in working order and the sifters and crushers on the granulating line had been dismantled. The plan for the production of



granulated output is one-tenth of the possible output. No moral and economic incentives for increasing the output of granules have been worked out. But this plant was put into operation in 1982 and it would seem that all the conditions exist for good work. Unfortunately, cases of such an attitude toward discipline and order--one of the reserves for raising the quality of output--are not isolated.

One of the means for observing technological discipline and raising the quality of output and the efficiency of production under the new management conditions is the certification and rationalization of workplaces, which must give an objective evaluation of the technical state and utilization of equipment and lead to the perfection or elimination of some workplaces.

Today most enterprises have limited themselves to a formal approach to this matter, without making extensive use of engineering thinking. Mountains of paper have been written and there was no improvement in the quality of technological operations in production sections and especially no reduction in their number. Of the 174 existing workplaces at the Chemolgenskiy Grain Products Combine in Alma-Ata Oblast, for example, certification was done for 64, only 3 were eliminated and not a single person was released. The situation is the same at the Vyazemskiy Grain Products Combine in the RSFSR, the Chardzhouskiy Combine in the Turkmen SSR, and at a number of other enterprises.

Just as in the case of certification, the brigade form of organization and stimulation of labor provides good possibilities for the improvement of the quality of the work and consequently of the quality of the output. This form of labor became widespread at the mixed feed enterprises of the ministries of grain products of the Ukrainian SSR, Estonian SSR, Kirghiz SSR and several others. It is essential to strengthen the work to introduce the brigade form of the organization of labor at the mixed feed enterprises of the ministries of grain products of the Uzbek SSR, Latvian SSR, Tajik SSR and Belorussian SSR.

The introduction of computer technology in the mixed feed industry is extremely unsatisfactory and little is being done to utilize the existing advanced experience. But the introduction of the first phase of an automated system for control of the technological process into experimental operation at the Ramenskiy Grain Products Combine made it possible to increase the plant's productivity to 100 tons a day, to eliminate the incorrect grading of raw material and to stabilize the quality of mixed feeds. The automated system has not yet been widely introduced for the automation of reporting and the writing out of quality certificates in the release of mixed feeds as in the experience of the mixed feed enterprises of the Moscow Oblast Administration of Grain Products, which permitted each enterprise to release one or two workers, to increase labor productivity, to exclude errors in drawing up the quality certificates and commodity transport invoices and to ensure a high level of reliability.

## Improve Working Conditions

In the 11th Five-Year Plan, 190 million rubles, or 72 rubles annually for each worker, were expended for measures to protect labor in the industry of the USSR Ministry of Grain Products.

At the enterprises of the ministries of grain products of a number of union republics, especially of the Belorussian SSR and Kazakh SSR, however, an unfavorable situation developed with respect to the observance of safety measures. This was the result of the unsatisfactory organization of work and workplaces, the violation of the rules for the carrying out of technological processes and for the operation of machinery and equipment, and deficiencies in the training and instructing of workers in safe labor methods.

Checks of the state of safety measures and safety against explosions and fires and an analysis of cases of production injuries and fires show that these questions, just as the dependable work of aspiration networks and hermetization, have not yet become primary for a number of grain products ministries and administrations.

The new directives for the designing of the aspiration networks of mixed feed plants have been in effect since 1985. But their reassessment has not been accomplished at all enterprises. This work is going very slowly. At most enterprises checked, some of the aspiration networks are not in working order or the equipment has become depressurized. Because of the high dust level and the unsanitary conditions, workers are not exercising effective control over the work of equipment, technological discipline is not being observed, and, as a consequence, economic sanctions were imposed on these enterprises in 1986 for producing substandard output. The turnover of personnel is also great at such plants.

## Work More Actively With Personnel

How is the concern for personnel being implemented in practice? When new mixed feed plants are put into operation, there frequently is a lack of real interest on the part of some ministries of grain products of the union republics, grain products administrations, and enterprises in the resolution of social questions. This is especially characteristic of the RSFSR Ministry of Grain Products. In this republic, essentially all facilities being put into operation lack an adequate amount of housing or do not have it at all at the moment of acceptance, not to mention kindergartens, schools, stores and other facilities for social and cultural welfare.

Thus, the summary estimate of expenditures foresaw 4.3 million rubles for civil construction for the grain products combine in Spassk-Dalnnyy in Primorskiy Kray. At the moment when the mixed feed plant was put into operation in September 1985, only 1.5 million had been appropriated. This passive position of the ministry and administration of grain products meant that during the entire start-up period the plant was manned with only two shifts of workers, worked unevenly and attained its planned capacity 3 months later than the standard time.

With an established work force of 400, the mixed feed plant in Glazov in the Udmurtskaya ASSR had only 1 house with 36 apartments at the time of acceptance. Can one expect that technical discipline and order will be guaranteed in the servicing of the up-to-date plant with a capacity of 735 tons a day by practically half of the staff of operational personnel? An analogous situation is developing at the mixed feed plant in Teykovo in Ivanovo Oblast.

The personnel for the new plants are still being prepared unsatisfactorily. In the fourth quarter of last year, a mixed feed plant was put into operation in Vladimir that was only 50 percent manned with personnel. Every year the Vladimir Grain Products Administration fails to fulfill the plan for the training of dosers, crushers, shift foremen, and laboratory chemists at permanent courses in tekhnikums. There are similar cases at other grain products administrations.

The large possibilities of the All-Union School for Mixed Feed Production Foremen in Alma-Ata are not being fully utilized. The RSFSR Ministry of Grain Products, for example, annually sends just 7 to 9 people for training, whereas the plan calls for 30.

The sponsoring help given to new plants by advanced enterprises is being organized late and often formally.

And how is the reserve of directors for the new plants being prepared? The sad experience in Sheksna, Kachalino, Spassk-Dalnyy and Nezlobnaya speaks about this. The list can be continued. In the first year of work there, they had already replaced the directors and chief engineers. Hence, the corresponding formation of the collective, organization of labor, rhythm of the work of the enterprises and quality of output. To bind personnel, it is essential to show concern for people in all areas of their work and rest.

At the present time in the enterprises of the grain products system, 1,086 subsidiary farms have been organized and are in operation. Good subsidiary farms have been established at the Kovrov Grain Products Combine in Vladimir Oblast and at the Rezekne Grain Products Combine in the Latvian SSR. On the whole, however, this movement is still inadequate. The work at each mixed feed enterprise to establish subsidiary plots and to expand those already in existence needs to be encouraged. For this purpose, it is expedient to utilize own capital investments and to take out a long-term loan from the USSR Gosbank.

Among the measures to stimulate labor with the transition to new management conditions, it is planned to raise the additions to basic wage rates by 20 to 24 percent for highly qualified workers and by as much as 50 percent of the salary for engineering and technical personnel. The right has been granted to enterprises and associations through savings in the wage fund. A number of other analogous measures are also foreseen. At the same time, it has been established that the sum of bonuses to leading workers of production associations (enterprises) for the basic results of economic activity is reduced as much as 25 percent in the event that they fail to fulfill the targets for the introduction of new equipment, progressive technology,

mechanization and automation of production processes. It is thereby essential to remember that the transition to the new conditions of the remuneration of labor will be carried out gradually, as the necessary funds accumulate to cover these additional payments. But these monies, no small sum (about 40 million rubles in the mixed feed industry alone), must be earned. The only way to do that is to increase the profitability of production. In the final analysis, this means the stimulation of conscientious labor for the production of quality output.

All progressive humanity is celebrating the 70th anniversary of the Great October this year. And the workers of the mixed feed industry, along with the entire Soviet nation, must observe this great event with highly organized and rhythmic labor and an increase in the pace of the development of the sector and of the quality of the output produced.

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## CSA FEED GRASS PROCUREMENT OVERVIEW

Moscow SELSKAYA ZHIZN in Russian 3 Jul 87 p 1

[Article by livestock manager M. Glinka on feed grass procurement, "The Weather Dictates"; first paragraph is source introduction]

[Text] The USSR Central Statistical Administration [CSA] reports: by 29 June, 26.1 million hectares of natural and sown grasses had been mowed; 16.5 million tons of hay and 23.3 million tons of dried preserved feed had been procured; 1,316,000 tons of artificially dehydrated green fodder had been produced; and the general nutritiousness of stored fodder is 16.7 million tons of feed units.

The situation in the country's grass fields is not simple nowadays. Grasses in the majority of localities are remarkably rich but not easy to get. The changeable weather interferes. In the country as a whole, as calculated by the USSR CSA, 16.7 million tons of feed units had been stored by 29 June. In all, this is 11 percent of what was planned and 14 percent less than a year ago. The procurement pace was higher than last year's in Uzbekistan, Kazakhstan, Azerbaijan, Moldavia, Kirghizia, Tajikistan and Turkmenia, in all oblasts and autonomous republics of the Volgo-Vyatskiy and Uralskiy economic regions, and also in the Maritime Kray, the Ivanovo, Kostroma, Kuybyshev, Penza, Ulyanovsk, Omsk, and Tyumen oblasts, and in the Tartar and Chechen-Ingush autonomous republics of the RSFSR. But in other localities, work in the meadows developed significantly more slowly than in June of last year.

Of course, the very best mowing time (and we remind you, this is the period of formation of ears on cereals and bean buds) is not the same year to year but fluctuates over a wide range. In the Kirghiz SSR for example, amazingly, a cold protracted spring put off the beginning of the hay harvest by 2-3 weeks. But the republic's farmers made up the slip and already have stored 3.37 quintals of feed units each per standard head -- 9 percent more than last-years. Unfortunately, this could not be done everywhere; not so much because of objective difficulties as because of errors in feed procurement organization.

Take the Ukraine, for example, where they stored 3.5 million tons of feed units -- 10 percent of what was planned and 87 percent of last-years June results. The Department of Agriculture and the Food Industry of the Central

Committee of the republic's Communist Party considers this a result of a serious lag in the preparation of hay harvesting equipment in the Sumy, Chernigov, Nikolayev and Dnepropetrovsk oblasts, and weak organization of feed procurement labor in the Volyn, Zhitomir, Zaporozhe, Lvov and Ternopol oblasts. But it appears that there is yet another reason -- wrong feed procurement tactics on a number of farms.

We are talking about selection of the means of preserving grass in winter. It can be dried as hay, grass meal or chopped straw, piled up as dried preserved feed or silage, or preserved by chemical agents. One would think it a matter for the technologists, the farm's livestock managers, and the agronomists to determine just which means it is best to use on each kolkhoz or sovkhoz. After all, this choice depends not only on the situation in each field at the time and on rapidly changing weather conditions which so rapidly force the execution of technical maneuvers, but also on the needs of the farms. One can name more than a few kolkhozes and sovkhozes where excellent results are achieved using primarily dried preserved feed and silage, and choose no smaller number of farms on which hay serves successfully as the primary feed. So why are there managers who dictate to the producers just which feed they should prepare and blame the specialist who decided to prepare dried preserved feed while in a "wet" frame of mind.

And it's not only the Ukraine. The Belorussian SELSKAYA GAZETA criticizes specialists who "under difficult weather conditions lost their heads and harvested grasses directly, laying up silage." In the Tula oblast they disgrace farm managers who "using old methods, pile valuable June grasses in silos" when "any man with the slightest degree of experience knows that all these riches are more properly used to prepare hay." Meanwhile, it is not those with "the slightest degree of experience" but the scientists who really know the business who already have explained a long time ago that it is just these early grasses which it is advisable to use for dried preserved feed and silage.

After all, 85-90 percent of the protein is preserved in silage stored with chemical preservatives -- 82 percent in dried preserved feed, and only 62 percent in hay which is dried in the field. Even when active ventilation is used, almost one fourth of the protein in grasses is lost. But from juicy young grasses, harvested in the early phases of development (as the modern technology of their multi-harvest utilization tells us to do) in general it is risky to prepare hay. So let's not pit one feed procurement technology against another but leave this delicate matter to the farm specialists.

In connection with this, the problem of planning in feed production arises. Is it really necessary to carry strict procurement plans by feed type down to the farm level? Would it not be better to give the kolkhoz and sovkhoz a broad capability for technical maneuvers and for control, choose one indicator -- the provision of cattle with nourishing substances (in feed units) with due regard for fodder quality?

This, incidentally, is being done already in many localities. The Lithuanian Gosagroprom recommends that republic feed procurers assign grasses either for hay, dried preserved feed, or silage depending on the weather. There they do not think one should be afraid to deviate from plans set for individual types of feed. That same point of view is held in Latvia and Estonia. Weather dictates the technology.

## REGIONAL FEED HARVEST PROGRESS, PROBLEMS NOTED

Moscow PRAVDA in Russian 17 June 87 p 1

[Editorial: "Summer Worries of Livestock Specialists: To Make Better Use of the Pasture Season and To Guarantee Sufficient Fodder for the Farms"]

[Text] The pasture season has come and such is the custom: who knew how to use the green riches of the fields at the right time; who fully utilizes his personnel resources; who lays in sufficient fodder; who is not poor in farm products; and who does not experience difficulties in fulfilling plans and obligations. Many collectives struggled to cross the 3000-5000 line in milk yield and to reduce the fattening of bulls by not less than 400-500 kilograms live weight.

The tasks facing livestock specialists predetermine the necessity of tackling actively, from the very first days of summer and without swerving, the urgent matters of their industry and subsequently raising the productivity of the herds. Quite a good foundation for this has been laid. For 5 months, purchases of cattle grew by 10 percent and of milk by 5 percent against the same period last year. Farms prepared better for the pasture season and made provisions for a steady supply of green feed for livestock. A lot of work has been done on the selection of herdsmen and the organization of brigades and links under collective contracting. All this has allowed many kolkhos and sovkhoz, for instance in Belorussia, the Tartar ASSR, and the Belgorod, Kiev and a number of other oblasts, to achieve a notable increase in products even as they begin to send the herds out to the meadow.

Getting more meat and milk on cheap summer feed is no small art. It is mastered successfully by those collectives that know how to organize herd feeding, that continually look for ways to increase herd productivity and that take into account the peculiarities of the season. Now, because of rainy weather, grasses in many areas are watery and less nourishing. Scientists recommend feeding cattle a dried mixture and enriching the rations with carbohydrate feeds. If this isn't taken into consideration and one thinks it enough to drive the cattle to the meadow and rivers of milk will begin to flow, then there is no need to expect success. Confirmation of this can be found in the practice of a significant portion of the farms in the Kursk, Bryansk, Zaporozhye and Ural oblasts which permitted livestock productivity to slump. Dynamic development of livestock husbandry is impossible without the

creation of a well functioning green conveyor and the introduction of efficient technology. All agro-industrial services have been called upon to stir up their sectors' activity to resolve the pressing problems of this industry.

How is animal husbandry getting along now? Alas, not every specialist or farm supervisor can answer this question with a great deal of truth. Expenditure of time and means remains high because of miscalculations in farm mechanization and imperfect equipment. The situation with meat and milk cattle breeding is particularly unfavorable, and on small farms most of all. New, highly productive, integrated sets of machinery and efficient technology are needed. However, useful work from a significant portion of the scientific research institutes of VASKhNIL and the machine building ministries is meagre. Even the good ideas of scientists have difficulty making their way into production. It is evident that enterprises of the chemical industry and the Ministry of Machine Building for Animal Husbandry and Fodder Production are lagging behind the growing demands of the farms. Frequently they supply villages with antiquated equipment and poor industrial rubber and other products.

The beginning of summer is the beginning of the green harvest toil and the formation of farm fodder reserves. Kolkhoz and sovkhoz have stored the first million tons of hay, dried preserved feed and silage. The foremost farms, for example, while struggling to procure feed, are not simply storing away tons but are doing their best to get high quality tons containing more nutrients and protein. To do this they are making wide use of active ventilation hay drying, hay molding, and storage of bulk silage with preservatives and various additives. However, a well thoughtout approach to organizing livestock rations is not found everywhere.

In the recently adopted CPSU Central Committee resolution "On Existing Shortfalls in the Work of Party, Soviet and Economic Organs of the Lithuanian SSR and the Odessa and Samarkand Oblasts in Increasing Production and Raising the Quality of Feed for Animal Husbandry" it was noted that in these localities they did not overcome sloth, had no critical approach to evaluating a feed production situation which had become complicated, and were irresponsible in resolving the urgent problems of this industry. Many kolkhoz and sovkhoz did not learn the lessons or draw the proper conclusions from a locality's failures in past years. Because of late, poor preparation of equipment and mismanagement, the best grass cutting periods slipped by and this led to a reduction in quality and large feed losses.

Serious shortcomings in organization of the fodder base have been revealed in Kazakhstan, Moldavia, Mordovia, and in the Amur, Kalinin, Tambov and Chelyabinsk oblasts. There also on many farms, no special significance was attributed to feed production and they are slow to master high technology and progressive methods of feed procurement and storage. In the face of such a lack of initiative regarding work, just what kind of farm output can we count on?

Considering the exceptional importance of valuable rations for the intensive development of animal husbandry, kolkhoz and sovkhoz are faced now with making



a real breakthrough in feed production. The task of increasing the amount provided by farms by up to 21 percent of feed units per standard head at a minimum will be levied. The practice of foremost farms supports the reality of this goal. It follows from their example that intensive production factors to get more plant protein and grain and to make better use of it must be utilized everywhere. And here, animal breeders have a right to serious complaints against suppliers of protein and mineral additives which do not satisfy the demands of the farms. While the capacities of the feed concentrate industry are being slowly increased, often improperly enriched fodder mixtures are being produced.

The motto of all participants in socialist competition in animal husbandry must be: achieve maximum product yield from each hectare of pasture land and from each kilogram of fodder. In creating conditions for intensive brigade and link labor, party committees and primary party organizations of the agro-industrial complex are called upon to help them to assimilate bravely cost accounting considerations and collective lease and family contracts, and to introduce widely a check system of expenditures. It is important to heighten demands for fulfillment of obligations accepted and for exactingness in the labor force for the state of affairs on farms and in feed production, and to create good working and recreational conditions for the people.

Time is costly. Let a day slip by now and you cannot make it up for a year. We must succeed in getting more feed and products from the meadows and fields everywhere and we must worry about the future of the farms. Consequently, we must prepare livestock structures for winter, and tune up machinery and feed shops. He who deals with these things successfully can count on success and on an appreciable profit in carrying out the resolutions of the 27th Party Congress.

13254

CSO: 1824/329

## REGIONAL FEED PROCUREMENT OPERATIONS REVIEWED

Moscow PRAVDA in Russian 21 May 87 pp 1, 2

[Article by Ye. Yevgenyev: "On the Fodder Field"; first paragraph PRAVDA introduction; capitalized passages published in bold face in the original]

[Text] Spring has rushed in as though it had suddenly remembered something. And along with spring the farmers are hurrying and stepping up the rates of the planting. The hay fields and pastures have turned green. The time for mass fodder procurement is approaching. This year it will be necessary to store up more than during last season. And the main thing is to achieve further improvement of the rations for the cattle.

In the CPSU Central Committee recently reports were heard from managers of party and soviet agencies and agroindustrial committees of a number of republics and oblasts concerning organizational and political work for further development of animal husbandry and fodder production. It was noted that its level does not yet meet the requirements of the 27th Party Congress. Special attention was devoted to the implementation of measures directed toward improving the quality of fodders. The entire arsenal of means of fighting for a full-value crop, gathering it and storing it should be inspected, prepared and utilized to a full degree.

Among the first to begin haying were the farms of the Central Asian republics. It is known that here almost every year they fail to harvest a considerable proportion of the fodders. Yet the technical base and the production potential of the agroindustrial complex make it possible to provide the farms with plenty of forage. But this year again the haying has not yet developed successfully everywhere.

PRAVDA CORRESPONDENT V. ARTEMENKO REPORTS ON UZBEKISTAN.

The first mowing of alfalfa began 15-20 days earlier than usual. They have started on the meadow grasses as well. They want to harvest all the crop. But the machine operators of Dzhizak and Navoy oblasts are lagging behind in the repair of fodder harvesting mechanisms and the ones that are in good repair are being utilized poorly. Because of the poor organization of labor a good deal of technical equipment is standing idle in Bukhara, Tashkent and Khorezm oblasts.

On the farms of Sovetabadskiy Rayon, in Samarkand Oblast, this year the grasses are healthy and thick and there is the possibility of preparing a supply of coarse fodders to last a year and a half. But here they were late in starting the mowing.

Nonetheless the fodder procurement workers of the republic began the season this year better than they did last year. The alfalfa crops are gratifying. They have already stored up several times more hay from them than they had by this date last season. Now the machine operators are putting away 90,000 tons of coarse seeds each day. There could be more if all the equipment were working.

[Boxed item: The USSR Central Statistical Administration Announces: By 8 May spring crops occupied 72.7 million hectares on the kolkhozes and sovkhoses. This is 22.2 million hectares less than had been planted by this time a year ago. The seeds of grain and pulse crops (not including corn) have been planted on 39.4 million hectares, sugar beets--3.2 million, corn--8.7 million and cotton--3.4 million hectares. They are planting vegetables, potatoes and sunflowers on the farms. These crops have been planted on 0.9, 1.3 and 2.9 million hectares, respectively.]

One must say that in many other regions of the country the preparation of fodder harvesting machines is proceeding slowly. According to data the USSR Central Statistical Administration, by the beginning of May almost one-fifth of the mowers, rakes and press pickups had not yet been repaired. And the silage and fodder harvesting combines were even less well-prepared. The work is lagging especially on the farms of Kazakhstan and Kursk, Astrakhan and Kurgan oblasts.

But how are things going with the preparation of facilities for storing fodder?

THE PRAVDA CORRESPONDENT FOR KIRGHIZIA, YU. RAZGULYAYEV, TELLS US:

The weather has pushed the time periods for green harvest in Kirghizia ahead by almost a month. By the middle of May only Osha Oblast and a couple of regions in the Chuysk Valley had taken the hay harvesting equipment out onto the meadows. And the grass stand was thick.

"But one must be able to harvest the green wealth from the meadows," the deputy chairman of the Kirghiz Gosagroprom, D. Zvyagintsev said, looking worried. "Our most serious problem is preserving the fodder."

The volumes of procurements are increasing in the republic. Losses are also increasing. Last year in Keminskiy Rayon, for example, about 40 percent of the silage was substandard. A good deal of the fodder spoiled during the winter in Kantskiy, Moscovskiy, and Toktogulskiy rayons. The main reason was mismanagement. The shortage of storage facilities also has an effect.

It seems that measures have been taken to eliminate the shortage. The Gosagroprom has proudly announced the figure of 122,000 tons. An equal amount

of storage space, which is much more than was planned, was introduced last year. But they tried to make it correspond to the needs and it turned out that the shortage exceeds the figure indicated by a factor of approximately...15.

This year a decision has been made to construct additional silage and haylage trenches. But it is not clear who will construct these capacities and where the materials for this will come from.

One truth is known: without a roof to store fodder means to destroy it. Nonetheless, according to data of the USSR Central Statistical Administration, the provision of farms of the country with storage facilities for hay does not exceed 20 percent, silage and haylage--81 percent, and root crops--12 percent. The situation is not changing very much this year either, for according to the plan the increase of standard capacities will amount to only 2-4 percent.

The prolonged rains held up the haying in Tadzhikistan.

PRAVDA CORRESPONDENT O. LATIFI TELLS ABOUT FODDER PROCUREMENT IN THIS REPUBLIC.

The abundant moisture makes the farmers both happy and sad. It will be possible to harvest a rich grass crop. But the bad weather has hampered the haying. In these conditions it is necessary to have flexible organization of work and skillful maneuvering of technical equipment and resources. Naturally, the collectives must be prepared for this ahead of time. And in the republic branch divisions of the agroindustrial complex, with the participation of party committees, have only just begun to train the rural workers. Although instead of having conferences they should really be mowing and drying the grass as the leading farms are doing.

Subdivisions working under a single contract, as was announced in the USSR Gosagroprom, have become the leading ones in the cultivation and procurements of feeds in the majority of republics of the country. In the RSFSR, the Ukraine and Kirghizia 72 percent of the arable land has been assigned to them, and even more of it has been assigned to them in Belorussia.

The green harvest, having started in the south, will soon come to other regions of the country. But, as usual, in many cases, there is indifference, poor management, and sluggishness. The kolkhozes and sovkhoses are faced with the task of providing for a real burst of energy in the production of forage. Each farm must have a minimum of a year and a half's supply of high-quality coarse and juicy fodders.

11772

CSO: 1824/276



## ROUND TABLE EXAMINES RSFSR DAIRY INDUSTRY PROBLEMS

Moscow SOVETSKAYA ROSSIYA in Russian 19 May 87 pp 1, 2

[Article by Yu. Shakutin and I. Filimonov: "Milk Troubles"; first three paragraphs SOVETSKAYA ROSSIYA introduction; capitalized passages published in bold face in the original]

[Text] During the past 10-15 years labor productivity in dairy cattle raising in Rossiya has practically not increased at all. And this is in spite of the fact that its comprehensive mechanization, especially the milking process, has reached a high level. On the kolkhozes and sovkhozes today, it is not easy to find a farm where the cows are milked in the old way--by hand. On the whole the productivity of the public herd has also increased. Immense amounts of money are invested in comprehensive mechanization of the farms each year, but the return from this money is still extremely low.

What is the matter? Why is the productivity of milkmaids and masters of machine milking not increasing? Why, in addition to this, are they losing hundreds of thousands of tons of milk on the farms of Russia and the percentage of rejected cows is increasing from year to year?

In order to answer these and a number of other questions, the newspaper's editorial staff held a "round table" meeting. Participating in its work were G. S. Ogryzkin, first deputy chief of the main animal husbandry administration of the RSFSR Gosagroprom; Yu. V. Gorbunov, chief of the Main Board Administration; A. P. Kryukov, deputy chief of the administration; N. I. Savina, head specialist of the administration; T. K. Reshetnikova, head zootechnician of the Sovetskaya Rossiya Kolkhoz in Georgiyevskiy Rayon in Stavropol Kray; honored zootechnician of the RSFSR, S. V. Sakharov, director of the Kolskiy Sovkhoz in Murmansk Oblast; candidate of agricultural sciences, E. A. Kelpis, general designer of the Ministry of Animal Husbandry Machine Building, chief of the Riga State Special Design Bureau; I. Ya. Melekhin, director of the Uspenskiy (Moscow Oblast) Plant for plastic items of the Ministry of Machine Building for Animal Husbandry and Fodder Production; and G. I. Yurin and M. M. Goykhenberg, engineer-designer of the public design bureau, who created the Mayak and Komsomolka milking machines.

Judging from the figures given at the very beginning of the round table discussion, the state of affairs in dairy animal husbandry is favorable on the

whole. There are about 260,000 milking machines in operation on the farms and complexes of the republic. This means that milking has been completely mechanized. The load on the average statistical milkmaid is also increasing. Today she tends twice as many cows as, say, 20 years ago.

What, then, is the problem?

"This is it," explained G. S. Ogryzkin. Behind the overall figure lies concealed a fairly unpleasant picture. Take this same complete mechanization of milking. If one were to break down this 100 percent it turns out that the majority--85 percent of the milking machines--are outdated equipment with low productivity. MILKMAIDS WORKING ON THEM STILL HAVE TO CARRY MILK BUCKETS. The milk line is what relieves them of manual labor. But...on the farm these are provided for only 13 percent of the milk. Although, it should be noted, for world practice a milk line is already a thing of the past, even a thing of the distant past: "Tandem," "Yelochka," "Karusel"--this is what our farms need today. And how many do we have? It is ridiculous even to say--only 3 percent of the need.

Now let us take a look at what lies behind this. It was said here that the load for milkmaids has doubled during the past 20 years. But, in the first place, the growth rates of labor productivity is very slow and, in the second place, this is still only an average of 23 cows per one worker. One can see what a small number this is if one looks at this example. On the Kolkhoz imeni Lenin in Novomoskovskiy Rayon in Tula Oblast in the dairy complex where a Yelochka milking machine of the latest model has been installed, one machine milking master handles 200 cows and obtains 1,000 tons of milk from them in a year.... This is productivity at the level of world standards! Our average milkmaid obtains only 90 tons of milk....

G. I. YURIN: IN GENERAL, WE ARE LAGGING BEHIND.... DURING THE 1960'S, USING OUR MAYAK MILKING MACHINE, MARIYA GROMOVA OF THE KOMMUNARKA SOVKHOZ OBTAINED 540 TONS OF MILK PER YEAR....

G. S. OGRYZKIN: The farms do not have good equipment and hence the bad results. We expend about 8 man-hours on the production of each quintal of milk--4-8 times more than they do abroad--even on our leading farms. And we are still surprised that our production cost of milk is high? And indeed, it does exceed all limits--on an average for Russia the production cost of 1 quintal of milk has approached 40 rubles.

BUT THE SADDEST THING IS THAT WE ARE NOT SURE IF THIS SITUATION WILL BE RECTIFIED IN THE NEAR FUTURE. I think this mainly from the way orders for new equipment are satisfied. Take the Yelochka and Tandem. For this year the farms ordered 2,100 machines but funds were allotted for only 700. And 1,500 are due to be written off, that is, the overall number will even decrease. We do not produce the Karusel at all; we purchase them abroad. Although it was first created in our country. And the flow of outdated, less productive installations is not decreasing. Orders, for example, for line machines (DAS-2B, UD-100A) are not only satisfied, but even covered with a surplus. They are imposed on the farms by force....

And we are forced to take them because they will offer us no others. Moreover, with a chronic shortage of spare parts and the poor reliability of the milking equipment itself, it is frequently necessary to use the machines for spare parts as soon as they come. And I will not even talk about their quality. For so many years we have been asking them to solve the problem of the teat cup liner....

And all this taken together means immense losses of milk. Using the current equipment the milkmaid cannot take all the milk from the cow, that is, milk it completely. According to the roughest calculations, just because of this we fail to receive somewhere around 6 million tons of milk.

In the opinion of participants in the round table discussion, the root of the problem today lies in providing for high-quality milking of the cows. But how can this be done if domestic equipment for dairies is extremely bad, unreliable and not very productive? The task seems unrealistic. But, it turns out, a solution to this problem was found even 8 years ago. Siberian scientists developed and submitted for production the so-called Vibropulsator, a small device which is easily installed on any milking machine. It was perfected by the Riga GSKB and experimental models have been tested successfully. And what happened?

T. K. RESHETNIKOVA: QUITE BY ACCIDENT WE MANAGED TO OBTAIN SEVERAL VIBROPULSATORS. A WONDERFUL THING! WE ARE USING THEM IN OUR COMPLEX. THE MILKING TIME DECREASED IMMEDIATELY, MASTITIS IN THE ANIMALS DROPPED TO ZERO, THE MILK YIELD INCREASED, AND THE FAT CONTENT IN THE MILK WAS RAISED TO 4.5 PERCENT.

S. V. SAKHAROV: On our sovkhos as well the Vibropulsators literally produced a revolution on the farms. We use them in ordinary milk production. During a year of work with the pulsators the milk yield from the cows increased by 400 kilograms. There is no doubt that this year we will receive 5,300 kilograms per cow. And I simply do not understand WHY THE PULSATORS ARE STILL A PROBLEM. Incidentally, we also had difficulty getting a hold of them.

M. I. SAVINA: The history of the pulsators is a clear example of red tape on the path to introducing the new. I had to deal with this. And I had to spend so much time and energy to prove the obvious. The USSR Gosagroprom represented by V. G. Zvinyatskogo and V. I. Mosiyko literally built a wall on the path from the pulsators to the farm. But why? It turned out that everything was quite simple--the pulsator was a competitor to their development.

Tell us, Ivan Yakovlevich, when did you finally manage to arrange for the output of the pulsators?

I. YA. MELEKHIN:

SO FAR WE HAVE NOTHING TO BE HAPPY ABOUT.... YOU KNOW, NINA IVANOVNA, HOW HARD WE HAD TO WORK TO INCLUDE THE PULSATOR IN THIS YEAR'S PRODUCTION PLAN.... JUST COORDINATING THE TECHNICAL SPECIFICATIONS, AND WITH WHOM--THE CLIENT, THE USSR GOSAGROPROM--THE MATTER WAS HELD UP FOR ALMOST A HALF YEAR BY THE DEPUTY

CHIEF OF THE MAIN BOARD, V. M. KOZHEVNIKOV. THE VERY QUESTION OF STARTING PRODUCTION WAS RESOLVED LITERALLY ON THE LAST DAY OF LAST YEAR. THIS YEAR THE PLANTS WILL BE ABLE TO PRODUCE FEW MORE THAN 200,000.

YU. V. GORBUNOV: Is that all? We still have to suffer and lose ~~all~~. Even if you gave us a million pulsators that would not be enough. They ~~are~~ needed on every farm!...

I. YA. MELEKHIN: The ministry gave me a task--to produce 700,000 ~~pulsators~~ next year. But it is unrealistic. Here is why. We have completely updated the equipment of the plant and spent an immense amount of foreign currency for rotary lines, press forms and so forth. The capacities make it possible to reach this quantity and even more. But we are the only enterprise in the branch that produces plastic items. The plant is stopped up with orders to Kurgan and God knows where else.... And this takes away forces. I understand the ministry; it is trying to meet the demand. But how many sand castles must we build and how much unrealistic planning must we do simply to write down a figure? The question of producing pulsators must be solved radically. For example, they should include other branches or relieve us of the small jobs and make it possible to use all the capacity of the imported equipment. Or perhaps we could begin to develop a new production....

A predictable question is why the Ministry of Machine Building for Animal Husbandry and Fodder Production cannot provide domestic animal husbandry with high-quality and diverse machines, including milking machines, that meet the world standards? It is known that we have enough assurances of this. But things never get around to actually doing anything. This same Yelochka from the Tula Kolkhoz that was mentioned above and which provides the greatest labor productivity, EXISTS IN ONLY ONE COPY. AND NOBODY KNOWS WHEN IT WILL GO INTO SERIES PRODUCTION. Perhaps we do not have enough ideas and design thought is standing still?

This is not altogether true--the general designer of the Ministry of Machine Building for Animal Husbandry and Fodder Production, E. A. KELTIS, takes the floor. In a certain respect in our development we are even ahead of foreign firms, with those same milking machines, for example.

But the fact is, and here Ivan Yakovlevich is quite right, we would like to help animal husbandry workers but we cannot. Suffice it to say that the GSKB completely fulfilled the plan for the development of a system of machines for the farms. There are ideas and many of them have already been embodied in blueprints and plans. But the branch is unable to translate them into machines and place the innovations on the conveyor. We do not have enough production capacities and have not developed efficient cooperation with other departments for manufacturing and delivering batching items and components. Of course, we ourselves are largely to blame and we may not have raised the issue strongly and promptly enough to the corresponding agencies, and we have not developed our own production. But another thing is also clear--we cannot reach the world level without help from other branches. Indeed, one cannot seriously suggest that through our own forces we are able to arrange production of computers for milking machines. And is it really necessary for us to do this if there is an electronics industry in the country and powerful associations?



Or take this question. We have said a lot here about the quality of the teat cup liners. Indeed it has no criticism. But as early as 1980 there was a decree of the USSR Council of Ministers which made it incumbent on the Ministry of the Petrochemical Industry to provide for the production of rubber with a service life of no less than a year and to improve its quality. But so far this has not been fulfilled.

The branch has developed a special program which envisions delivering to the Ministry of Machine Building for Animal Husbandry and Fodder Production by 1990 the most important materials and batching items with improved quality. Unfortunately, in spite of the two conferences and a number of agreements, this program has not yet been instituted because of the refusal of the supply ministries to participate in its implementation. We would ask the USSR Gosstandart to take all necessary measures so that in the near future it will be approved and implemented. And we consider it necessary for the Gossnab to allot enterprises of the branch a full volume of new materials, without which it will be impossible to sharply increase the reliability of milk equipment in the near future.

In general, for these purposes we would like the USSR GOSAGROPROM TO TAKE A MORE ACTIVE POSITION, ABOVE ALL IN THE COORDINATION OF EFFORTS OF VARIOUS DEPARTMENTS FOR PROVIDING PRODUCTION WITH NEW TECHNICAL EQUIPMENT. It seems to us that it could unite the efforts of VASKhNIL and branch science in searching for progressive new ideas.

A. P. KRYUKOV: All that is good. But what do you order us production workers to do? While you are coordinating and agreeing upon deliveries, what will we use to milk the cows? The machines you have developed and shown us are not bad. But they basically exist only in experimental models. The new equipment is not coming from the conveyor yet. It is no accident that our orders for it are filled by only half. And now they have stopped producing those same old line milkers. Is it not time to reject these and sharply reduce the output and use the released capacities for new technical equipment for which the farms are impatiently waiting?

YU. V. GORBUNOV: We are obliged to change over to intensive technologies in dairy animal husbandry. By the year 1990 they will be used to produce 17 million tons of milk. But intensive technology is possible only on the basis of new, highly productive equipment. So far it is being provided for producing only 3 million tons of milk by intensive technology. You yourself understand that the program is already failing....

But that is not all. Animal husbandry has the most terrible shortage of labor force. How can this be if we have such a low load per worker? BECAUSE OF THE FACT, ACCORDING TO OUR CALCULATIONS, THAT IN THE REPUBLIC A MILLION COWS ARE MILKED BY PEOPLE WHO HAVE NOTHING TO DO WITH THE INDUSTRY. It is time for the Ministry of Machine Building for animal husbandry and fodder production to change from words to deeds. Such a situation is no longer tolerable in dairy animal husbandry. I am not even talking about the quality of the machines that are produced....

E. A. KELTIS: We understand your alarm and your demands very well. The Ministry, incidentally, has envisioned in several oblasts--Belgorod, Lipetsk and Voronezh, and in Krasnodar Kray--in the near future to help local industry and in cooperation with it achieve a complete reequipment of the farms and create models of complete, highly productive mechanization....

YU. V. GORBUNOV: But that is only four regions. What about the oblasts in Russia?

E. A. KELTIS: I must tell you that not every farm is ready for the latest technical equipment yet. It can be introduced as the farms are reconstructed. And new construction must be done in such a way that even the plans envision milking halls or premises for the Tandems and Yelochkas, not to mention the Karusels. This comprehensive task is far from simple and this is why I again draw attention to the fact that it is necessary to put a stop to useless confrontation and at the level of the USSR Gosagroprom think about and carefully coordinate our efforts for reequipping dairy animal husbandry.

How many times have we had to encounter a situation when the solution to one or another most important state problem has come up against a brick wall? Its essence has drowned in the mutual complaints and accusations, and the truth has revolved around in a vicious circle, never finding the edge. Is this not true here? The Ministry of Machine Building for Animal Husbandry and fodder production, as we know, has design ideas, but the suppliers let them down, there is no coordination, material supply is poor, and so forth and so on. We are confident that if at the round table there were representatives of the Ministry of the Petrochemical Industry, the Gossnab and the Gosplan, who are receiving all the criticism, they would also be able to give dozens of reasons like this.

But perhaps THE WHOLE PROBLEM LIES IN THE VERY APPROACH TO SOLVING THE PROBLEM --THE OLD, CUSTOMARY ONE WHICH IS SUITABLE FOR THE PAST AND DOES NOT TAKE INTO ACCOUNT THE RESTRUCTURING TAKING PLACE IN THE COUNTRY OR THE INSISTENT NEED FOR ACCELERATION? This idea was expressed during the course of the round table discussion by M. M. GOYKHENBERG.

Let us make a digression. As early as the 1960's he and his comrades, on the initiative of the Komsomol Central Committee, created a public design bureau. In a short period of time energetic young engineers had literally accomplished a revolution in the area of machine milking. They designed and manufactured the Komsomolka Automatic Installation with electronic control of the milking. It was awarded a large gold medal at an international exhibition and the world-famous firm Alpha Laval offered its services for joint production. But they were rejected. And in spite of many decisions at the highest government levels, the Komsomolka has not yet gone on to the conveyor.

Then the public design bureau produced a somewhat simpler machine--the Mayak, with which during the same 1960's a record was set for labor productivity in dairy animal husbandry. Mayaks were produced by one of the Moscow plants for farms of the oblast.

Let us emphasize one peculiarity: the public design bureau in those years was closely linked to production and its ideas were immediately embodied in metal. It was essentially a scientific production association.

Why not take this path now? WHY NOT CREATE WITHIN THE FRAMEWORK OF THE GOSAGROPROM OF RUSSIA THE SAME KIND OF PIONEER GROUP--A SPECIAL SCIENTIFIC ASSOCIATION WHICH WOULD PROVIDE FOR ACCELERATION OF SCIENTIFIC AND TECHNICAL REEQUIPMENT OF THE REPUBLIC'S DAIRIES AND WOULD BREAK OUT OF THE BLIND ALLEY THAT HAS BEEN FORMED HERE? The need for such an NPO is also dictated by the fact that Russia has more than 60 percent of the farms which can be reequipped only with nonstandard equipment, and the existing system of machines will not fit into them. It is necessary finally to look to the future so that they do not go up a blind alley again. In the republic small farms are being restored on the basis of the family contract and today they are already demanding small, specific mechanization (this, incidentally, is where the Mayak could be used!).

We know that the conditions for dairy animal husbandry in the Russian Federation are special and probably no other republic has this diversity of zonal peculiarities. Here one cannot act according to routine and treat everything the same. Therefore it would be expedient to give more rights to the RSFSR Gosagroprom to submit direct orders for equipment for farms, which would help, on the basis of its own NPO, to carry out accelerated development and the creation of its own machines and installations. It would clearly be helpful to conclude direct concession agreements for the manufacture of new technical equipment with foreign firms.

All these suggestions were made by participants in the round table discussion. There will probably be other variants for overcoming the stagnation as well. The main thing is that it is finally time to put an end to all the empty words and to begin to act energetically and boldly.

11772

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## PROBLEMS WITH CROPS IN UKRAINE

Kiev SILSKI VISTI in Ukrainian 29 Apr 87 p 2

## Corn Seed Problems Discussed

[Text] The term Elita represents the highest quality seed produced by the research breeding stations. This was the commonly accepted view of the collective and state farm workers in the Kherson Oblast until recently. Their convictions were shattered by the Bryliv research station and the Ukrainian Scientific Research Institute of Irrigated Agriculture who sold the farmers 1500 and 1430 quintals of substandard seed, respectively. In addition, the research farms of the institute were paid an undeserved 15,200 rubles extra for high quality seed.

Concomitantly, a considerable portion of the seed production goes for food and forage. In the last two years alone 7,600 tons of Elita seeds were used for purposes other than those intended and, as a result, 1,047,000 rubles worth of high quality seeds were lost.

Poor agricultural practices are in effect at the Bryliv experimental station and at the Kakhovskiy state farm that specializes in Elita quality seeds. In addition, at the Pioneer state farm seed work is also proceeding poorly. These farms are characterized by shortcoming in various aspects of agriculture, such as crop rotation; the net effect is that the Elita seed lose their desirable characteristics and qualities.

The December 1986 UkrSSR CC Plenum noted that for 15 years the institute has failed to produce highly productive varieties and hybrids of winter wheat and maize.

In their breeding programs they did not cooperate with other scientific establishments, and failed to utilize Soviet and foreign gene banks. Insufficient attention was accorded to improving the resistance of the crops to unfavorable environmental factors, and to shortening the vegetative period of corn. This would explain the fact that of the 10 varieties of winter wheat, 2 varieties of spring wheat, and 10 varieties of corn hybrids produced in the last 11 years, 13 have already failed state testing programs, and regionalization of 2 has been discontinued. In view of this, the farms in southern Ukraine have been forced to use varieties developed at other institutes that are suitable for dry lands.



The performance of the Ukrainian Scientific Research Institute of Agriculture has been much better. In that same 11 year period of time this institute has provided the state 71 varieties and hybrid lines for testing, of which 43 have been regionalized and are grown on more than a million hectares. However, even this institute has not been too astute in managing its funds and resources. There has been inadequate attention given to the production of new varieties with improved qualities, resistance to disease, and drought tolerance. As a result, a number of grain crops, lupin and soya that have been regionalized are not widely cultivated. The research and seed producing farms of the institute failed to provide the state and collective farms with highly productive seed. A year ago studies were not completed on 4 of the 11 crops being investigated. In addition, during the last two years Elita seeds were used for food products and forage in the amount of 1,200 tons, resulting in a loss of 152,800 rubles.

The material and technological foundations for seed breeding work at the two institute is weak. The management of these institutes and various organizations of the UkrSSR Ministry of Construction are to be blamed for delays in the construction of Kiev and Kherson breeding centers, that should have been put into operation in 1981. Construction has been delayed on plants for processing parental forms of hybrid corn at the Drabivskiy and Panfilivskiy research station of the Institute of Agriculture because of lack of appropriate project plans. At the Pioneer state farm, which is devoted to Elita seeds, and which belongs to the Institute of Irrigated Agriculture, construction has not commenced because of mismanagement at the Kherson Construction Trust.

All of these facts came to light when the UkrSSR National Control Committee reviewed both institutes. V.M. Krut, the deputy director of the presidium of the Southern Department of the All-Union Agricultural Academy (AUAA), received a reprimand for lack of discipline and inadequate control over the research programs dealing with seed quality. I.O. Basyuk, chairman of the production planning department of AUAA, was reprimanded for similar shortcomings pertaining to seed research and production at the farms of the institutes. A severe reprimand was also issued to V.I. Ostapiv, director of the Ukrainian Scientific Research Institute of Irrigated Agriculture. Similar sanctions were applied to V.F. Sayko, director of the Ukrainian Scientific Research Institute of Agriculture. At the Institute of Irrigated Agriculture disciplinary and material measures were taken against 14 individuals, and at the Institute of Agriculture against three; one individual was dismissed from his post. The Committee took into consideration the fact that the UkrSSR Ministry of Construction and of Agricultural Construction will take specific measures this year to correct some of the shortcomings.

#### Corn Crop Advice for this Year's Conditions

Kiev SILSKI VISTI in Ukrainian 6 Jun 87 p 1

[Article by Oleksandr Mikhaylyuta, Zaporozhye Oblast]

[Text] It has long been recognized that strong farms have no shortage of workers, as long as aesthetics and living conditions are satisfactory. In other words, as long as the people, and especially the youth, are well taken care of.

A sad lesson, however, can be learned from my own village of Zarichchya in the Hulyay Pole Rayon of Zaporozhye Oblast. Years ago it was a beautiful village and today weeds are growing in the town square. Yet in 1970 there wasn't an empty house and every backyard had a cow and well-attended gardens. The village had three farms, a truck-farm brigade, an orchard, a young vineyard, a store, a club, and even a harness repair shop. The only thing that was lacking was a good road and, perhaps, concern for the people. A.O. Zhuravel, in his twenty years as head of the collective farm imeni Engels, never once met with the villagers at, say, a meeting, never talked with the veterans or schoolchildren, never visited anyone at home. The same disinterest was displayed by the entire governing board. This attitude and irresponsibility planted the seeds of dissatisfaction among the farm workers. Houses became vacant. Young people became scarce.

Things were no better at the villages of Zelenyy Hay, Vesele, and Dorozhne. Maybe they will go the way that other villages that have disappeared in the oblast have gone, such as Zorya, Pushkine, Siri Khutory, Vilne, Krutoyarivka, to name just a few.

The problem can be described as a vicious circle. People, especially the young, leave the villages because of the lack of development and opportunities, with the exodus itself contributing to further stagnation.

Steps can be taken to reverse the situation. The komsomol has become activated. While it is too early to speak about all the rayons in the oblast, some progress has already been noted in the Veselivskiy Rayon. This rayon has been identified as one of the nine weakest rayons in Ukraine. On the basis of joint decisions of the central committee of the Ukrainian komsomol, Gosagrprom, and other organizations a thousand agricultural specialists, graduates of technical and educational institutions, have been dispatched to these areas. Twelve young men and women have already been dispatched to Bilorichka and Ozerenny state farms and the Ukrayina and Gorkiy collective farms. By September an additional contingent is expected to arrive.

This experiment proceeds slowly. The specialists need a place to live. There is also demand for mechanics and animal husbandry specialists. Considerable concern was expressed on this point by Oleksandr Berezhetskiy, director of the Bilorichka state farm, at the conference organized by the komsomol. The first secretary of the raykom komsomol Iryna Kukovinets had to appeal to local and ministerial for assistance. Finally, 60 homesteads are to be put up this year for the younger workers by three student detachments. Nobody will come to the Gorkiy collective farm: they're out of money and their credit is poor.

Things look different at the 20th Party Congress collective farm in Orikhiv Rayon headed by Sergiy Gerus. They have run into difficulties with construction, but Sergiy is persistent in seeking solutions and has support from the young farmers. He has met with the scientific production student detachment of the Zaporozhye Industrial Institute, and the young construction engineers have already made plans for a gym, an addition to the six-year school, and some other buildings. Soon construction will start, representing a new residential complex and the first of its kind in the oblast. The complex promises to be unique and attractive.

But there is another factor involved in village rehabilitation. What about their appearance? The ideas of the MZhK [expansion unknown], approved by the 27th Party Congress, and propagated by the komsomol have met with indifference and inertia at the departmental level. The drabness that has been partially eliminated from the cities has been transplanted on a large scale to the villages. Architects continue to produce standard plans and the local bureaucrats continue to select the cheapest (and the worst) plans, while managers of agricultural construction enterprises are indifferent as to what they build as long the quotas are fulfilled. The product is a village in which all the houses and sheds look identical, the central rayon homesteads all look alike, and everything is parallel and perpendicular.

The drabness of the village architecture remains one of the worst examples of formalism in approach to people.

12172

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## ADVICE ON SUGAR BEET CROP PROTECTION IN UKRAINE

## Care of Sugar Beet Fields

Kiev SILSKI VISTI in Ukrainian 6 May 87 p 1

[Article by specialists at the USSR Gosagroprom and scientists at the All-Union Scientific Research Institute of Sugar Beets]

[Text] Late spring this year in all areas of Ukraine has caused considerable concern among sugar beet farmers. However, the approach of fine weather and soil drying has created conditions favorable for sowing.

Immediate harrowing is required on sown fields covered by a hard crust as a result of rains. This step is especially important when temperatures are low and plant growth at an accelerated rate to destroy weed development. The cold post-spring weather makes necessary two, or even three, pre-sprouting harrowings on fields sowed before May 27. The depth of harrowing should be at a level equal to two-thirds that of the sowing depth. Harrowing must be avoided when the sprout reach a height of 1 cm.

Because of the loss of growth potential this spring, efforts must be made to enhance growth and development including timely harrowing. Harrowing is conducted to a depth of 3-5 cm in the inter-row region and to a depth of 2-5 cm in the protective section of the rows.

## Protection of Sugar Beet Shoots from Root Rot

Kiev SILSKI VISTI in Ukrainian 12 May 87 p 1

[Article by Z. Pozhar, doctor of agricultural sciences, and R. Pshenychuk, candidate of agricultural sciences]

[Text] Current conditions predispose to the development of root rot on sugar beet plants. Rot commences on the germinating plants prior to sprouting. When the first pair of true leaves develops brown spots appear on the rootlets, circular lesions may appear and, occasionally, the entire rootlet turns black. Seriously affected plants die, few sprouts appear, and 10-40% of the harvest may be lost.



Root rot is most often encountered in the western and central oblasts of Ukraine. Its development is favored by high moisture, soil crust formation, drought, and lack of nutrients.

A prescribed series of agrotechnical and chemical measures must be employed to prevent root rot.

In addition to these measures, sowing was conducted on some 500,000 hectares with seeds pretreated with the insecticide furadan that destroys the root pests buryakova krykhitka, drotyanyk, blishka, dovhonosyk, etc.

In addition, the effects of root rot may also be controlled by harrowing and fertilization after sprouting.

#### Protection of Sugar Beet Crops

Kiev SILSKI VISTI in Ukrainian 16 May 87 p 1

[Article by M. Rubets, chairman, Ukrsilhospkhimiya Administration for Plant Protection]

[Excerpts] Last year's sugar beet fields in the Poltava, Cherkassy, and Kirovograd oblasts have been invaded on a massive scale by blishka, krykhitky, and shchytonosky.

This massive invasion by pests at many state and collective farms in the Cherkassy, Khmelnytskyi, Vinnitsa, Poltava, Kirovograd, Kiev, and Chernigov oblasts threatens the sugar beet sprouts even before their appearance.

In areas threatened by the zvychaynyy dovhonosyk the old and new sugar beet fields should be protected by digging protective trenches and treatment with hexachlorane, in conjunction with constant monitoring for the appearance of plant fleas, dovhonosyk, and other pests.

Efficient utilization of the chemical agents requires that they be applied at field boundaries immediately after sprouting, with spraying done by ground machinery. Sown fields that have been treated with furadane are treated with insecticides only in exceptional cases to protect the at-risk sprouts.

#### Weed Control on Sugar Beet Fields

Kiev SILSKI VISTI in Ukrainian 22 May 87 p 1

[Article by M. Rubets, chairman, Ukrsilhospkhimiya Administration for Plant Protection, Ukr SSR Gosagroprom, and S. Matushkin, head, Weed Control Laboratory, All-Union Scientific Research Institute of Sugar Beets]

[Excerpts] Weeds may reduce harvests by 2-5 quintals/hectare per day by taking up moisture and nutrients; if weed contamination is heavy the crops may be completely destroyed. Consequently, all agrotechnical and chemical means must be employed in weed control.

The first pair of true leaves are already well-developed on some sugar beet fields, while others are still without sprouts. Contamination with weeds varies widely. Some fields are green with spear grass, sow thistle, wild horseradish, pigweed, and colza. Control measures have to be based on the degree of weed contamination and sugar beet development. Immediate presprouting harrowing has to be conducted on fields with 1-1.5 cm germinants. On other fields control measures are designed to fit the prevalent conditions.

Air temperature has to be considered in planning herbicide treatment. Herbicides are most effective at a temperature of 18-24 °C. Temperatures of 25-28°C may have an adverse effect on plants. In the latter case the crops should be treated with herbicides in the evening, with a dose reduction of 10-15%.

Adherence to sanitary regulations is mandatory when working with herbicides.

12172

CSO: 1811/020

## HOUSING SHORTAGE IN ODESSA DEPLORED

Moscow PRAVDA in Russian 3 Jun 87 p 3

[Article by V. Vasilets, PRAVDA correspondent: "Oh! Odessa!"; the first paragraph is source introduction]

[Text] Odessa--She was celebrated by Pushkin and Bagritskiy and provided inspiration for Gogol and Gorkiy. Here, Mendeleyev and Filatov performed their magic. The rebellious "Potemkin" brought her revolutionary glory, and the battle glory she earned during the Great Patriotic War. Today, Odessa is an industrial city with the largest port in the country, dozens of plants and factories, higher institutes of learning, scientific institutes, theaters, and, of course, resorts. And who has not heard from native Odessans about the famous Privoz, Arkadiya, Potemkin Stairs, and Pushkin and Deribasov Streets, without which one cannot imagine Odessa.

... And now in blessed Arkadiya I meet a native Odessan and hear: "Do you think that today's Odessa is Odessa? I cannot recognize her myself. Just think. You cannot get tickets to a movie theater: they are always sold out. You cannot get into the scientific library: be satisfied with reading the sign "No Admittance" because the building is in a delapidated condition. You cannot get to a doctor: the hospitals are overcrowded. For the same reason, do not bring your daughter to a kindergarten. Send your son to the third shift in school, although many towns and villages have had only one shift for a long time already. Do not try to go to a public bath: there is no hot water. You cannot drink a glass of juice or eat a ginger cookie: waiting lines are everywhere ..."

At first, I thought: the man is offended by something, or he is simply exaggerating. I turned to the statistics and ... Oh! Odessa! It turned out that a city with a population of one million is provided with the following public facilities as a percentage of that required: movie theaters - 56 percent, schools - 70 percent, public catering - 55 percent, outpatient clinics - 80 percent, kindergartens - 88 percent, public baths - 45 percent, and hotels - 24 percent. In some microrayons with thousands of residents, there is no post office, public kitchen, day care center, or a basic sports grounds. Odessans are joking sadly: "Now we have four seas: a salt-water sea, a sea of people, a sea of inconveniences, and a sea of mud, not counting the medicinal Kuyalnik mud."

The most urgent problem is housing. 70,000 families are on the waiting list for an apartment. During the last five-year plan period, the waiting line has increased instead of decreasing. How did this happen; who is guilty of causing the stagnation? Some blame the planners: they did not predict the population increase. They estimated that today 900,000 residents will live in Odessa, but she has become a city with a population of over a million. Therefore, the overpopulation.

And what is the reason? It turns out that officials in Odessa readily take care of "Varangians." Many people remember, for example, the time when a certain N. Ivanov was invited from the Far East to manage the "Kinap" plant. Housing was arranged for him but he could not handle the job. In addition to the managerial cadres, there has been no end to the invitations to the norm setters [limitchiki]. For example, the Black Sea Steamship Company and the Resort Department have been providing passport registrations for people literally aboard the ships and in the utility rooms of resorts, respectively. As a result, new waiting lines of "beneficiaries." In addition, retired servicemen fell in love with Odessa despite the fact that there is not enough place for everybody. So it went on: guests were receiving housing while native Odessans, for example, workers in the shoe factory, remained without housing for a quarter of a century.

There is another problem: housing distribution based on influence. The former judge of the Primorskiy Rayon A. Trofimov, who is doing quite well presently as a law consultant for the Department of Savings Banks, voluntarily exchanged a three-room section in a new building for one room in a communal apartment. Shortly after, the rayispolkom moved his neighbors to another place, and the judge after this "expansion" became the owner of a larger and more convenient apartment than the first one. This was an obvious fraud, but the ispolkom helped the judge even further by providing an apartment for his son.

There is no end to examples of housing squandering. In just a two-year period, the gorispolkom made eight decisions with regard to housing law violations in Primorskiy, Suvorovskiy, Tsentralnyy, Leninskiy, and Zhovtnevy rayons. Chairmen of rayispolkoms V. Pugach, V. Bovchenko, V. Govorunov, and V. Zhdanov have been reprimanded. Obviously, bringing in order the distribution of housing promises a substantial reduction in the waiting list.

By the way, speaking of capital investments. During 1981-1985, builders did not use 12 million rubles assigned for housing and social-cultural amenities. One of the reasons for this lag is the self-removal of construction enterprises, and most importantly, the "Chernomorgidrostroy" and "Odessatransstroy" Combines headed by I. Nagornykh and G. Sapenyuk, respectively, from civil construction. They spent all their resources on construction of large and prestigious projects. There you have a scope and bonuses. As to an apartment building ... who will ever notice it? The heads of the combines never had the time to resolve the housing problem for their own workers: the boarding houses are overcrowded, and many workers are stuck in unsafe houses.



The impression is growing that people in Odessa have gotten used to anything. One day I drove along Chernyakhovskiy Street and noticed that builders were gluing particle boards on top of the siding of a 16-story high building. I remembered that my mother always used to cover our hut from the ground to the roof with potato stems in order to make it warmer in the winter. Was this not the same method being used by Odessans? Indeed, it was. Officials in the gorispolkom advised me that already four such buildings have been made warmer using this method.

It is an illustration of the fact that housing in Odessa is lacking due to the low quality of construction. Just imagine what it means to put a "coat" on a whole frozen block. This is equal, as a minimum, with regard to lost time and resources, to the construction of two additional buildings. In particular, this represents a scaled-down approach to design. It is not always warm near the sea, and winters may be severe. Still, the designs of buildings are selected without taking into consideration these facts.

The housing deficit is also caused by industrial enterprises. For example, 14 plants and institutes of the Machine Tool Ministry, including "Pressmash" and "Tsentrolit" have not built a single apartment building, and have not transferred a single kopeck to the city for the development of social-cultural amenities.

A similar position is taken by the All-Union Central Council of Labor Unions (VTsSPS). It schedules millions of rubles for the development of resorts, but not a single kopeck is spent on construction of housing. And VTsSPS runs a special "enterprise": for each person resting at a resort, three persons of service personnel are required. Should their passports show registration at the sanatoriums, and should they live there afraid of being thrown out at any moment?

In order for each family to receive an apartment before the year 2000, it is scheduled to build in the city 11 million square meters of housing. In other words, during two five-year-plan periods, another city the size of Odessa must be built. And here a new problem arises: how to build it. The industrial construction base of the city is weak. For comparison: the capacity of the Building Construction Combine (DSK) in Odessa is 280,000 square meters of housing per year, and that in Dnepropetrovsk is 1,060,000 square meters per year. And this situation exists in spite of the fact that already in 1980, Odessa asked the UkSSR Gosplan to increase the capacity of the construction industry.

Another open question remains: where to build in this "pearl near the sea," which already has a territory 13,000 hectares smaller than required by standards for the present population. Five projects have been discussed. Meanwhile, the city is being built outside city limits. During just this five-year-plan period, is it scheduled to take away 200 hectares of fertile land from agricultural usage. At the same time, there are wide spaces inside city limits in which to build. In many rayons, ugly one-story shanties stand. But officials are afraid to touch them: people who are moved out must receive

apartments. But the day must come when the 240,000 square meters of dangerous housing are abolished.

Specialists at the Kiev State Institute for City Design (Giprograd) explain that the problem is not only the fear. To build new buildings in the middle of old blocks is expensive. The old one-story houses are built on catacombs. Therefore, exploration will be costly. Strengthening of the so-called "zero-cycle" will also require additional expenses.

It is difficult to agree with such reasoning. It seems that the city gains in housing costs, but loses a hundred times more in supplying remote rayons with heat, water, and transportation. The construction sites must be looked for in the center of the city. There is a number of them. In particular, the plots for summer houses have become the ugly "birthmark" of Odessa. Bolshoy Fontan and areas of Proletarskiy Boulevard and Arkadiya are built up by board-and-tar-paper shanties and sheds. One could not imagine anything similar in Moscow's Mayakovskiy Square or in Leningrad near the Kazan Cathedral. As to Odessa, she has gotten used to this. In addition, she makes a profit: many dachas are rented to people coming to resorts.

It is a long time due to do something about this area, which has become a place for unearned income and unsanitary conditions and a place of hooliganism and drunkenness during the swimming season. The common cause will only benefit from some action. Just in the "Dachnyy" microrayon, it is possible to build housing for 8,000 Odessans.

The city administration intends to build up Bolshoy Fontan, but does not have the land reserves to move summer house cooperatives. The Agroprom is promising inconvenient lots dozens of kilometers away from the city, causing an uprising by owners of sheds who are living in ... Moscow, Kishinev, and Kharkov. Meanwhile, the bargaining continues ...

A roof over one's head, even in the center of the city, does not provide full satisfaction with the living conditions. It is well known that the culture of a city is determined by the water consumption level. Let us go back to the statistics: in Odessa, 289 liters of water per day are supplied for every resident, that is, 100 liters less than the norm. These numbers are known to UkSSR Gosplan officials, but do not result in any action. Apparently, they think that a city at the sea does not need any public baths. Therefore, baths are not being built. And this is in a city to which millions of people come for a summer rest. And now does the water shortage affect the operation of hospitals, catering services, laundries, and kindergartens?

It is true that recently Odessa managed to build a new water supply line. However, immediately a large-scale customer showed up, namely, a plant near the port. One starts to wonder what were the reasons for the oblispolkom to grant permission to build a chemical plant in a resort area.

Two years ago, PRAVDA criticized the local authorities for poor preparations for winter. Hot water was not running in apartments, schools, and hospitals. It was determined that 80% of the water lines are worn out, and that a large amount of water is spilled and does not enter the radiators. And what is the

situation today? Again, there are puddles in the streets, and again manholes are throwing out water like fountains. The emergency service is falling behind in fixing the holes: it is short of spare parts, transportation, and specialists ...

The city practically does not have a modern storm sewer system. Twenty percent the city's territory is subject to floods, and water enters basements and damages the foundations. And one should not be surprised that mosquitoes are present even during the winter: they breed in slime which is formed in the basements. As strange as this may sound, new rayons are being built without storm sewers.

In times past, Odessa had her own roads department, and somehow holes on the roads had been fixed. Now, an oblast combine has been formed which pays more attention to improvements of interrayon roads. And the city was left as a tree at the road curb: anybody who wants to can break off a limb.

Odessa's backyards leave a sad impression. Behind the beautiful facades lie perennial junk accumulations. Ten years ago, construction of a necessary for the city waste-treatment plant began, using the resources of enterprises. A large amount of money was invested, but the project was never finished, and stands as a monument to mismanagement. Highways, overpasses, underground crossings, and parking lots remain on paper. Lately, people have started to lose even the sidewalks: they are used for car parking. Pedestrians are to use the pavements of the streets. For many residents, it takes one and a half hours to get to work.

In connection with this fact, the problem of subway construction deserves attention. A subway promises to be the most inexpensive in the country: the city is built on shell rock.

However, meanwhile ... The city is definitely neglected in the area of community services. For decades, the local authorities did not pay much attention to its development. Only recently, some changes began to occur. The heating problem has become less serious. The first highway has been built. In 1986, investments in community services increased 1.8 times, and housing construction had grown by 26.6 percent compared with 1985. However, these successes already have been achieved. In order to get out of the hole, the city must make a sharp jump. Calculations show that it needs at least 500 million rubles for the five-year-plan period. Taking into account the money assigned by the republic and obtained locally, less than half of the necessary money is available. As before, the Fuel Machine Ministry, the Ministry of Construction Materials, the Ministry of Merchant Marine, the Ministry of Transportation, and the Ministry of Agricultural Machine Building brush aside the rightful demands of the city.

However, Odessans themselves must remember that good fortunes are based not on money alone. Everybody must apply his hands in order for the famous city to arouse as before the feeling of pride in its residents, and a feeling of delight in its guests.

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## IMPROVING FUEL EFFICIENCY AT POWER STATIONS, SYSTEMS

Moscow ELEKTRICHESKIYE STANTSII in Russian No 5, May 87

[Article by A. S. Gorshkov, doctor of technical sciences, All-Union Thermo-Technical Institute: "Improving the Efficiency of Fuel Utilization in Power Plants and Energy Systems -- a Highly Important Sectorial and National Economic Task"]

[Text] Power engineers and workers in the coal industry and in the country's entire fuel-energy complex must shift the center of their attention from quantitative indicators to quality and efficiency, from intermediate results to end results, from expanding industrial assets to renovating them, and from expanding fuel and raw material resources to better utilization of them [1].

In conformity with these requirements the goal has been set of securing in the 12th Five-Year plan considerable savings of organic fuel in the national economy. The amount generated by the electric power industry without expending organic fuel has become a highly important indicator. For AES and GES the indicator of average annual utilization of installed capacity has taken on special importance not only to evaluate the efficiency of utilizing expensive industrial assets but of savings in organic fuel as well.

In 1990 thermal power plants are to generate about two-thirds of the electric power and the entire output of thermal energy (prior to the development of ATETs [nuclear heat and power plants] and AST [nuclear thermal plants]). They are currently consuming about 475 million tons of standard fuel to produce electric power and thermal energy and in the near future the consumption may increase to 500 million tons. This means that measures calculated to save 1 percent of fuel may secure in absolute terms savings of five million tons of standard fuel per year. At the current average cost of standard fuel of 20 rubles per ton free on GRES the expected annual effect from such savings would be 100 million rubles.

Naturally, this cannot be achieved without cost. If the recovery time for investment is taken as three years (with a norm of 8.33 years) then 300 million rubles will have to be invested on measures to save fuel. To achieve these fuel savings at AES will require an annual output of 15 billion kWh of electric power, installed capacity of 2 million kW, and relative investment of



no more than 150 rubles/kWh, which is several times less than actual costs. While yielding preeminence in savings of organic fuel to AES and TETs, we must also utilize the capabilities of TES, all the more so since they are economically competitive.

Let us look at the indicators that characterize quality and efficiency for the end results of fuel utilization in generating electric power at the TES of USSR Minenergo [Ministry of Power and Electrification]. These indicators are shown in Table 1 for the period 1945-1980 and separately for 1985, the final year of the 11th Five-Year Plan.

Table 1

Показатель 1	1945 г.	1980 г.	Отклонение 2		1985 г.
			абсолют- ное 3	относи- тельной 4	
5 Удельный расход топлива на электроэнергию, г/(кВт·ч)	628	328	300	48	326,2
6 Удельные потери топлива в производстве электроэнергии, г/(кВт·ч)	505	205	300	60	203,2
7 Удельный отпуск электроэнергии, кВт·ч/кг	1,60	3,05	1,45	90	3,066
8 К.п.д. (нетто) производства электроэнергии, %	19,5	37,4	17,9	90	37,66
9 Удельный расход топлива на тепловую энергию, кг/Гкал	204,6	173	31,6	16	173
10 Доля газа-мазута, %	11	65	54	—	65
11 Удельный расход тепла турбоагрегатов, ккал/(кВт·ч)	3063	1900	1163	38	1154
12 Доля выработки электроэнергии, %:					
по теплофикационному циклу	2	21	19	—	22,4
по конденсационному циклу на блоках СКД	—	38	38	—	34,5

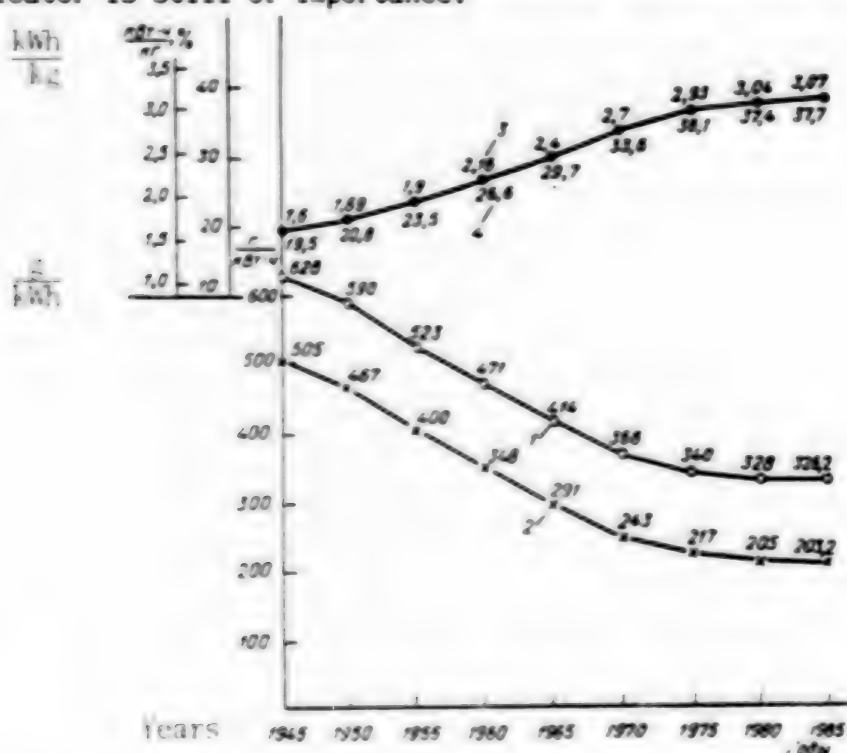
Key:

- Indicator
- Deviation
- Absolute
- Relative
- Relative consumption of fuel for electric power, g/kWh
- Relative fuel losses in generating electric power, g/kWh
- Relative output of electric power, kWh/kg
- Efficiency (net) of electric power generation, %
- Relative consumption of fuel for thermal energy, kg/Gcal
- Ratio of gas-mazut, %
- Relative consumption of heat of turbo-units, kcal/kWh

12. Percentage of electric power generated:  
 for district heating cycle  
 for condensation cycle of SKD [not further identified]  
 generator units

Relative consumption of standard fuel for power supplied to the network is designated in PTE [technical operating rules] as the chief of the technical-economic indicators for the operation of TES, and of the power generation indicators in the national economic register. At the end of the war in 1945 it was at the level of 628 g/kWh and then declined year by year to reach the magnitude of 328 g/kWh in 1980.

As the sketch shows, the curve of relative fuel consumption flattened out and by the 11th Five-Year Plan had decreased overall by 1.8 g/kWh. One might think that this indicator had lost its previous importance. In some directive documents it is not even considered and for power plants and energy systems it has been moved into the category of estimating indicators. In actual fact this indicator is still of importance.



Dynamics of Indicators of Efficiency of Fuel Utilization at TES of USSR Minenergo: 1 - Relative consumption of standard fuel for power supplied to the network, g/kWh; 2 - Relative losses of standard fuel for electric power supplied to the network, g/kWh; 3 - Relative output of electric power to the network per kilogram of standard fuel, kWh/kg; 4 - Efficiency (net) of electric power generation, %.

The absolute decline in relative fuel consumption was actually less. But we must remember that at the 1945 level, with annual power generation of 38.4 billion kWh by TES, a decrease of relative consumption of 1 g/kWh provided absolute fuel savings of 38,400 tons, while in 1985 the same decrease of 1 kWh, with the generation of 1,100 billion kWh, yields savings of 1.1 million tons, i.e., 30 times greater. In 1985 absolute savings from a decrease in relative consumption of 1.8 g/kWh versus 1980 amounted to 2 million tons valued at about 40 million rubles. The savings achieved were reflected in production costs and profits.

Relative losses of fuel in the generation of electric power are defined by the magnitude of relative fuel consumption, except for expenditures on power for its physical equivalent (123 g/kWh). In 1945 the magnitude of losses amounted to an average of 505 g/kWh and in 1980 it had declined to 205 g/kWh, i.e., by 60 percent. The decrease in relative loss and the decrease in relative fuel consumption was the same in absolute magnitude -- 300 g/kWh, but in relation to the lower initial magnitude of losses the effect was considerably greater. This substantial relative decrease in losses had a favorable effect not only on savings in fuel and on the production processes of TES but also on reducing harmful discharges of fuel combustion products into the environment and of heat into the atmosphere and bodies of water.

Relative output of electric power per kilogram of standard fuel is defined as the reciprocal of relative consumption with a corresponding change in the size of the magnitudes. In the period from 1945 to 1980 relative output of power increased from 1.6 to 3.05 kWh/kg. Where relative consumption decreased by 48 percent in this period and relative losses by 60 percent, relative output increased by 90 percent. Increasing by the same amount were the efficiency of fuel utilization and the productivity of technical means and labor, not only at power plants but in the fuel-energy complex as a whole. Relative output of power is an indicator of the end results of fuel utilization.

Net efficiency in the generation of electric power is also defined by the magnitude of relative fuel consumption. This is essentially the relative output of useful power per unit of fuel consumed for power. In the period from 1945 to 1980 net efficiency grew from 19.5 to 37.4 percent, i.e., by 17.9 percent in absolute magnitude and by 90 percent relative to the initial magnitude. It is remarkable that at the start of the period under examination a change in efficiency of 1 percent caused a reduction in relative fuel consumption of 5.12 percent, and of 2.67 at the end, and therefore from the absolute deviation it is difficult to judge the change in fuel consumption.

Each of the designated indicators describes in its own way the efficiency of the many-sided thermal energy process. But it is enough to know just one of them -- relative fuel consumption. This indicator is preferred not just because it is familiar but for convenience in planning, records keeping, analysis, and evaluating the results of fuel utilization.

Its dynamic change in the period 1945-1980 can be explained, judging from the data in Table 1, by a decline of 38 percent in relative heat consumption by

turbine facilities, due mainly to increased generation of electric power for the district heating cycle and steam with the supercritical parameters of 24 MPa and 540°C. Relative fuel consumption for thermal energy, which determine the efficiency of boiler houses, was reduced in the same period by 16 percent, mainly due to an increase in the proportion of gas-mazut fuel and to an increase in the proportion of centralized heat supply from boiler houses with more efficient equipment. For an attained level of relative fuel consumption of 173 kg/Gcal and a net efficiency of 90 percent.

Let us look at the operating indicators for the preceding 11th Five-Year Plan (Table 2), when there was very limited introduction of new capacity at TES, when reserves of capacity were inadequate, and when the structure of power generation and relative fuel consumption for groups of the same kind of equipment did not change much and as a consequence average relative consumption decreased by only 1.8 g/kWh. This reduction was obtained thanks to the increased proportion of TETs, which had a relative consumption 88 g/kWh lower than KES [condensation power plants], and a 1 percent increase in their proportion was reflected in average relative consumption of 0.88 percent. The proportion of district heating at TETs even declined, but with their greater participation in total generation there was an increase from 21 to 22.4 percent. At TETs there was an increase in the ratio of generation for the condensation cycle, but at facilities with elevated and supercritical steam parameters this led not to an increase but to a decrease in relative fuel consumption at TETs per g/kWh.

Table 2

Структура мощности	1980 г.		1985 г.		Отклонение показателя за 1985 г. по отношению к 1980 г., г/(кВт·ч)		
	%	г/(кВт·ч)	%	г/(кВт·ч)	По группам	Структура	Всего
ТЭЦ	32.8	270	35.4	269	-0.35	-2.22	-2.57
КЭС	67.2	356	64.6	357.2	+0.77	-	+0.77
Минэнерго СССР	100	328	100	326.2	+0.42	-2.22	-1.8
Теплофикационный цикл	63.6	160	62.5	160	-	+3.6	+3.6
Конденсационный цикл	36.4	452	37.5	450	-4.6	-	-4.6
Всего ТЭЦ	100	270	100	269	-4.6	+3.6	-1.0
Блоки 24 МПа	50	337.4	53.4	340	+1.4	-1.1	+0.3
Прочие КЭС	50	375.6	46.6	377.5	+0.9	-	+0.9
Всего КЭС	100	356	100	357.2	+2.3	-1.1	+1.2

Key:

- |  |                            |
|--|----------------------------|
| 1. Structure of plant                                  | 8. KES                     |
| 2. Deviation of 1985 indicator relative to 1980, g/kWh | 9. USSR Minenergo          |
| 3. g/kWh   | 10. District heating cycle |
| 4. By groups   | 11. Condensation cycle     |
| 5. Structure   | 12. Total TETs             |
| 6. Total   | 13. 24-MPa generator units |
| 7. TETs  | 14. Other KES              |
|  | 15. Total KES              |

For KES with supercritical steam parameters of 24 MPa and 540°C an increase was noted in relative fuel consumption of 2.6 g/kWh. This was due mainly to



the introduction of new and more efficient equipment. At the same time other inefficient KES increased their relative consumption by 1.9 g/kWh because of wear and tear and deterioration in operating procedures and fuel quality.

There has been and continues to be a high ratio of electric power generation in power systems that have relative fuel consumption in excess of 420 g/kWh. Table 3 presents data for the USSR Minenergo facilities that have the highest relative fuel consumption. Under conditions of a shortage of capacity and restrictions on power consumers the utilization was justified of even highly uneconomical equipment. One must bear in mind, however, that replacing it with equipment that has a relative fuel consumption of 300 g/kWh only to the extent of 1 percent or 10 billion kWh in absolute terms would provide annual savings of about 1.2 million tons of standard fuel.

Table 3

Наименование установок 1	1980 г.		1985 г.	
	Удельный расход топлива, г/(кВт·ч) 2	Доля выработ-ки, % 3	Удельный расход топлива, г/(кВт·ч) 2	Доля выработ-ки, % 3
4 Конденсационная часть ТЭЦ	462	11,9	450	13,6
5 Конденсационные на паре 9 МПа	427,7	7,1	439,6	4,5
6 ГТУ	525,7	0,1	453,5	0,1
7 Итого	—	19,1	—	18,2

Key:

1. Type of facility
2. Relative fuel consumption, g/kWh
3. Percentage of output
4. Condensation part of TETs
5. Condensation units with 9-MPa steam
6. GTU [gas turbine power plants]
7. Total

To this highly uneconomical equipment we must add 150-160-MW power generator units that operate with an average relative fuel consumption of 373 g/kWh. Their share of power generated is 7.4 percent. As reserve capacity becomes available this output should naturally decrease.

It is appropriate to mention the ideas about a new system of planning the indicators of power enterprises and energy associations. It is well known that what is encouraged now at power plants is not the reduction of relative fuel consumption but the attainment of absolute savings of fuel for the month as the sum of the corresponding magnitudes of individual groups of equipment and for an energy association overall -- as the sum of savings in fuel by the power plants belonging to it without consideration for the structure of output. Personnel have thus been unconcerned about redistributing energy output among groups of equipment or in changing the structure of it.

Fuel savings at each group of equipment are defined as the difference between actual relative fuel consumption and the norm, figured on actual operating conditions. This relative consumption may substantially differ from the actual norm with an economical distribution of loads and actual operating conditions, and thus there will be errors in evaluating the quality of work of the personnel.

Deductions for the material incentives fund for absolute savings in fuel are produced on the order of 70 percent of its value in actual prices for the reporting period. Prices, however, vary within very wide limits, judging from the data in Price List No. 03-01, which became effective on 9 January 1982, as figured per ton of standard fuel: Ekibastuz coal is 4.5 rubles/ton, Kansk-Achinsk coal is 5.3 rubles/ton, Lvov-Volynskiy coal is 34.5 rubles/ton, and Podmoskovnyy coal is 30.3 rubles/ton; mazut with a sulfur content of no more than 2 percent is from 23 to 28 rubles/ton, TES gas of Urengoy is 5 rubles/ton and in Rostov and Krasnodar oblasts and in Moldavia it is 25.6 rubles/ton. Obviously there is not enough incentive to economize on Ekibastuz and Kansk-Achinsk coal or on Urengoy gas at TES. There is no incentive to replace mazut with more expensive coal, for example with Donetsk ARSh [run-of-the-mine anthracite culm] at a cost of 28.4 rubles/ton or with Podmoskovnyy or Lvov-Volynskiy coal. In many cases the conversion of power equipment from mazut to coal is not economically justifiable. Fuel prices should be reviewed so as to encourage an increase in total fuel resources and to free up mazut. Perhaps power enterprises should adopt unified reference prices for savings per ton of standard solid fuel, gas, or mazut. Their consumer value in an integrated power system is actually the same, but for mazut especially it should be higher.

A very substantial improvement in the structure of electric power generation and a substantial reduction in relative fuel consumption in a system are achieved by introducing new highly efficient equipment and renovating productive assets. This kind of equipment is already in operation. For example, for type T-250/300-240 district heating facilities average relative fuel consumption has reached the record low level of 232.8 g/kWh.

Another example of efficiency and utilization of installed capacity can be seen in condensation power plants with high-power generator units, as shown in Table 4. These generator units operate reliably for a long time and economically on steam with the supercritical parameters of 24 MPa and 540°C. Their indicators are already equal to norms or close to them, and this must be maintained in future operations (the indicators in Table 4 are given for 1985).

Much credit for the complete incorporation of these generator units goes to both operating and repair personnel, who have to promote the maintenance of normative indicators. At these GRES the forces of operating and repair workers were united to achieve end results, material-technical supply was provided, loss of worktime was precluded, and the mechanization of labor-intensive processes was improved. This is a model for others.

Table 4

1. Наименование ГРЭС	2. Число бло- ков	3. Вид топлива	4. Удельный расход топ. лив. г/(кВт·ч)	5. Коэффициент использова- ния установ- ленной мощ- ности, %	6. Недоисполь- зованная мощ- ность на ва- регуляцию, млн. кВт
K-300-240					
7 Средне-Уральская	3	Газ	314,4	88	1,8
8 Костромская	8	Мазут 17	316,0	73,9	22,4
9 Лукомльская	8	"	319,1	66,7	24,1
10 Кармановская	6	"	319,7	84,6	1,5
11 Ириклинская	8	"	319,9	84,3	2,7
12 Рефтинская	6	Экибастуз- ский уголь	330,6	81,7	1,7
K-500-240					
12 Рефтинская	4	Экибастуз- ский уголь	328,4	81,3	—
13 Троицкая	2	То же 18	333,3	79,2	—
K-800-240					
14 Запорожская	3	Мазут 17	319,1	75,8	—
15 Углегорская	3	"	325,5	78,6	—

## Key:

- |  |                    |
|--|--------------------|
| 1. Type of GRES  | 9. Lukomlskaya     |
| 2. Number of generator units                                 | 10. Karmanovskaya  |
| 3. Type of fuel  | 11. Iriklnskaya    |
| 4. Relative fuel consumption, g/kWh                          | 12. Reftinlskaya   |
| 5. Installed capacity utilization factor, %                  | 13. Troitskaya     |
| 6. Underutilization of capacity due to<br>load regulation, % | 14. Zaporozhskaya  |
| 7. Sredne-Uralskaya  | 15. Uglegorskaya   |
| 8. Kostromskaya  | 16. Gas            |
|  | 17. Mazut          |
|  | 18. Ekibastuz coal |

These generator units could have even lower relative fuel consumption, but it is well known that in 1971 they reduced the live-steam temperature and intermediate superheating of it on the grounds that the metal and pipes had poor heat-resistant properties. But even after the quality of the latter was improved by the introduction of new technology in the metallurgical industry and the organization of improved input and output monitoring of the production of pipe and boilers, steam superheating was still at a low level even with low steam pressure in the intermediate superheater. Because of this there is an annual overburning in the units of about 2.5 million tons of standard fuel costing 50 million rubles. Restoring the parameters to their level and further improving them in high-power generator units is still awaiting a positive solution.

It has happened that over the past 20 years the capacity of generator units has increased from 300 to 1,200 MW while the steam parameters have remained unchanged, and therefore the efficiency of the units has not improved. In prolonged operation the SKR-100 unit of the Kashirskaya GRES has proven the

feasibility of converting to a higher level of steam parameters, and in the light of this positive experience NTS [the scientific and technical council] of USSR Minenergomash [Ministry of Power Machine Building] has acknowledged that it is feasible to produce power equipment for a highly efficient generator unit with a capacity of 300 MW or more. The same conclusions have been reached by detailed scientific and technical studies and technical-economic computations for an 800-MW generator unit, which were carried out by GKNT [State Committee for Science and Technology]. But a decision to produce this unit has not been reached.

Maneuverable equipment is the current need. The Kostromskaya, Lukomlskaya, Kiriziskaya, and other high-power generator units with supercritical pressure shown in Table 4 have also proven to be somewhat maneuverable. Perhaps a generator unit could also be maneuverable that has higher parameters and is limited only by startups and shutdowns. Now that there is a decidedly large inventory of generator units in need of modernization power engineers are properly requiring power machine builders to develop a new high-power and highly efficient condensation generator unit with elevated supercritical steam parameters. These could replace the outmoded units. Design tests have shown that normal modernization is costly and does not lead to the required improvement in reliability and in technical-economic indicators.

The examples cited are evidence of the availability of large scientific and technical reserves for technical renovation and for improving the efficiency of heat and power engineering. There are other examples as well, but with more remote times for introducing new and advanced equipment. We must overcome the sluggishness in utilizing existing reserves.

Attention must be paid to the indicators of the Reftinskaya and Troitskaya 500-MW GRES (Table 4), which operate on high-ash Ekibastuz coal, have reduced relative fuel consumption to 328 g/kWh, and have increased the utilization of installed capacity to more than 80 percent. The indicators could be even better with delivery of higher quality coal rather than a heterogeneous rock mass. It must be kept in mind that with mechanized excavation and greater output from the fields coal quality will deteriorate even more if the rock mass is not processed. Much has already been written to this effect [4 and 5], proving the need to improve fuel quality and the overall fuel system of power plants. But workers in the coal industry, unlike other sectors, stubbornly reject the obligation to improve the quality of their product and believe that coal consumers alone should deal with this. They say: if we give you more rock than coal, then store it separately and then mix it with better coal delivered, and if the quality is still unacceptable, then redo your equipment to adapt it to poorer coal, without counting costs. It is impossible to agree with this, since these conditions could not guarantee the required energy supply to the national economy, not to mention the economic losses to the power industry.



## CONCLUSIONS

1. Thermal power plants are maintaining their role into the distant future and will be consumers of large reserves of organic fuel, the efficient use of which must be increased.
2. Power engineers must pay special attention to the efficient utilization of fuel, which is characterized by relative fuel consumption, relative losses of fuel, relative output of power, and net efficiency of power generation. From these indicators the relative fuel consumption is selected by which the others are determined.
3. With a very substantial reduction in relative fuel consumption come substantial reserves for savings, as proved by analysis of the structure of electric power generation and of relative fuel consumption by groups of equipment.
4. Personnel must have an equal stake in achieving maximum savings of both expensive and cheap fuel per its average reference cost and the higher cost of mazut.
5. There must be wide dissemination of the experience of achieving the best operating indicators of existing high-power generator units with supercritical parameters in both base and regulated modes.
6. Studies should be intensified on the development of a high-efficiency generator unit with elevated supercritical parameters, primarily as a partial replacement for outmoded generator units.
7. Coal industry workers must be prodded to shift the center of their attention from quantitative indicators for the excavation of rock mass to qualitative indicators of coal shipped to consumers and for this there must be an improvement in excavation technology and more intensive development of the processing of coal for power plants.

## BIBLIOGRAPHY

1. "Resolution of the 27th Congress of the Communist Party of the Soviet Union on the Political Report of the CPSU Central Committee," KOMMUNIST, 1986, No. 4.
2. "Main Directions of the Economic and Social Development of the USSR for 1986-1990 and for the Period up to 2000," IZVESTIYA, 9 March 1986.
3. Makukhin, A. N., "Results of the Development of Power Engineering in 1985 and Goals for 1976 [sic] and for the 12th Five-Year Plan," TEPLOENERGETIKA, 1986, No. 2.
4. Styrikovich, M. A., Dobrokhotoy, V. I., and Tager, S. A., "Scientific and Technical Outlook and Problems for the Combustion of Organic Fuel in High-Power Power Plants," TEPLOENERGETIKA, 1986, No. 5.
5. Gorshkov, A. S., "Improving the Fuel System -- the Prime Requisite for Improving the Efficiency of Thermal Power Plants," ELEKTRICHESKIYE STANTSII, 1985, No. 11.

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## POWER, ELECTRIFICATION MINISTRY CITES GOALS

Moscow ENERGETIK in Russian No 5, May 87 pp 1-3

[Unattributed article: "Labor Goals for the Jubilee Year and the 12th Five-Year Plan"]

[Text] Collectives of power industry and construction workers, responding with deeds to the decisions of the 27th CPSU Central Committee Congress and Plenums, have been spreading socialist competition to accelerate social and economic development and intensify production. By making every possible use of internal resources, they have assumed major obligations for a worthy greeting to the 70th Anniversary of the Great October Revolution and to successfully fulfill and overfulfill the five-year plan targets. Collectives of the Surgutskaya GRES [State Regional Electric Power Station] Production Association, the Zaporozhye AES [Nuclear Power Station] Construction Administration and Kureygesstroy are heading up the socialist competition.

The USSR Minenergo [Ministry of Power and Electrification] board and the Central Committee Presidium of the Power Station and Electrotechnical Industry's workers' Trade Union discussed and adopted increased obligations for the sector as a whole.

In solving their main problem--providing the national economy with a reliable and uninterrupted supply of power and heat--the power industry workers feel that the law that every power system must observe the expeditor's load schedule must be treated as indisputable.

The end of the 12th Five-Year Plan period will see some 1,524 billion kw/hours of electric power being generated (not counting Nuclear Power Stations), in which connection 44 billion above-plan kw/hours will be generated during the Jubilee year of 1987, with the use of the sector's installed capacity brought up to 73 percent.

We have decided to further increase the country's power engineering capacities by improving the equipment now in use. In comparison to the 11th Five-Year Plan period, we plan to double the amount of capital invested in reequipping and renovating power-production equipment by upping these investments to R2.5 billion during the current five-year plan period.

Capacity limitations at operating thermal electric power stations will be reduced during this five-year plan period by introducing new boilers, converting power stations to gas operation and constructing and revamping power station facilities to boost per-station output overall by 10 million kw. This includes the output of the Ekibastuzskaya GRES-1 by 75 MW, the Syrdaryinskaya GRES by 82 MW, the Kurganskaya TETs [Heat and Electric Power Station] by 80 MW and the Novocherkasskaya GRES by 30 MW; capacities at operating hydroelectric power stations will be revamped and boosted by 10.6 million kw; completion of embankment and reservoir construction at GES's will boost their output by 6 million kw, and putting new VL's [aerial power lines] into operation will boost the output of the Kievskaya GES by 300 MW in 1987 and will increase the output of the Dnestrovskaya GES by 102 MW.

Plans call for 4,310,000 cubic m of mazut storage capacity to be made ready before the end of the five-year plan period. This is 310,000 cubic m greater than the prescribed volume target. Some 1,160,000 cubic m are to be put into operation in 1987, which is 160,000 cubic m above-target.

Our thermal electric power stations will save no less than 800,000 t of standard fuel through better assimilation of projected indicators and putting more vigor into economic work.

Plans call for a 20 percent reduction in the standard familiarization time period for condensing power blocks having a unit capacity of 500-800 mw, a one-month reduction in the familiarization time period for those blocks which will begin operating in 1987, with a 3-month reduction for the unified Surgutskaya GRES's power blocks and 1 month at the Permskaya GRES.

It has been decided to reduce the amount of time equipment is down for repair by 0.5 percent by improving equipment manufacturing procedures and repair quality by extensively introducing collective forms of labor organization and boosting the material motivation of our repair personnel. We will thus generate no less than an additional 250 million kw/hours of electric power in 1987, and meet our Jubilee Year target for capital and medium equipment repair with the issuance of guaranteed operating and service manuals by the 70th Anniversary of the Great October Revolution.

The task of implementing large-scale measures for the continued development of the USSR's Unified Power Program has been assigned. Plans call for no less than 120,000 km of 35 kv (and greater) power transmission lines to be erected before the end of the five-year plan period, for constructing, putting into operation and familiarization of the first phase of 1,500 kv direct current over-head power transmission lines having a carrying capacity of 3 million kv, with transformer substations at Ekibastuz and Tambov. No less than 50 above plan km of power transmission lines of all voltages are to be built in 1987. Optimization of power conditions, and the introduction of new emergency prevention devices will automatically increase the carrying capacity of the USSR Unified Power Systems inter-system links by 1.1 million kv.

We still need to solve tremendous problems involving greatly improving the reliability of the power supply to rural consumers. In particular, Category 1 consumers must have a reserve power supply fully ensured prior to the end of

the five-year plan period. This amounts to no less than 2,200 facilities in 1987. The amount of electric power supplied to rural consumers in 1987 will increase by 5.8 billion kw/hours compared to 1986, and will come to 147.7 billion kw/hours.

We will be putting more effort into environmental protection. R125 million will be used to these ends in 1987, and devices for cleaning sulphur oxide from stack gases will be put into operation at the Dorogobuzhskaya and Gubkinskaya TETs's.

Labor collectives of power industry construction workers and operators, and scientific labor collectives are focussing their efforts on implementing the USSR Power Program.

We plan to further develop and improve the structure of our power-production capacities by speeding up the construction of nuclear and hydroelectric power stations, and large-scale thermal electric power stations fired by the inexpensive coals of the eastern coal fields, and by the widespread turning over of turn-key projects.

By 1990, we plan to assimilate some R21.2 billion in capital investments throughout the "power engineering" sector (except for AES's); to increase the installed capacity of our nuclear power stations more than 2-fold; to construct hydroelectric power stations on rivers in Siberia, Central Asia and the Far East with a total capacity of 9 million kw and to continue erecting large-scale thermal electric power stations with capacities of 4-6 million kw in the country's eastern regions.

We have to make great advances in the area of capital construction. In 1987 we will carry out a total of R8.25 billion in construction and installation work and put no less than 15.2 million kw of new power-production capacities into operation. In addition to the work called for in the State Plan, we will put the 250 MW power block No 3 at Leningrad's Yuzhnaya TETs and the 117 MW hydraulic turbogenerator unit No 2 at the Shulbinskaya GES into operation and will rebuild three hydraulic turbogenerators at the Nurekskaya GES.

We have decided to mark the 70th Anniversary of the Great October Revolution by putting a number of facilities and capacities into operation ahead of schedule:

we will put the 60-MW No 3 power block at Mosenergo [Moscow Regional Power Industry Administration] TETs-22 and the 158.5-km, 330-kv power transmission line, which stretches from the Ignalinskaya AES to Polotsk, into operation in August, a month ahead of the planned deadline;

we will bring the Sayano-Shushenskaya GES up to its planned parameters, will turn the 330-KV North Lenenergo [Leningrad Regional Power Administration] 200 MV/Ampere No 2 autotransformer and the 101.6-km 110-KV Tagrinskiy-Bakhilovskiy power transmission line over for operation;



we will put the 164.9-km 220-KV Uryum-Mogocha and the 83-km Zhireken-Uryum power transmission lines and the 500-KV Polotsk Substation into operation by Power Engineer's Day.

By introducing advanced working methods and scientific and technical achievements, progressive production methods, by increasing the shift system for operation of machines and mechanisms and by improving the quality of our work, we will achieve planned increases in labor productivity in 1987, and our construction industry and machine-building enterprises will overfulfill planned increases by 1.5 percent; we also plan to reduce the production costs of construction and installation work, which will allow us to meet the target for profits to the tune of R1,620 million.

We plan to implement major measures to improve the operational efficiency of our sector by improving the manner in which the achievements of scientific and technical progress are used. We have thus decided to increase the volume of standardized, series, type and reusable designs by 3 percent over 1986; to put a pilot 580-MV natural gas-fired MHD [magnetohydrodynamic] power block into operation at the Ryazanskaya GRES; to further improve control in power engineering through the extensive use of computers, and to put the second phases of the ASU's [automated control systems] at the Litovglavenergo, Kalinin Oblast, Altay Kray and Orenburg Oblast power systems into operation, with a total economic effect of R550,000; to introduce, in 1987, the use of noncombustible oil in the lubrication systems of 800 MW steam turbines at power blocks No 2 of the Permskaya GRES, and No 5 at the Zaporozhskaya GRES, deaerator-free thermal circuits in the 300 MW Ladyzhinskaya GRES and an oxygen-neutral water regime in the 10 power blocks.

In 1987 we will introduce radically new technical resolutions into the designs of boilers so they can burn low-rank coals: we will develop a detail design for rebuilding the boiler at the Dobrotvorskaya GRES to use an airflow furnace; we will rebuild the Pribaltiyskaya GRES's 220 t/hour boiler and convert it to burn bituminous shale in a fluidized flame bed; we will conduct research into boilers equipped with swirling-type furnaces at the Ust Ilimskaya TETs and boilers equipped with cyclone furnaces at the Novosibirskaya TETs-3.

We plan, by using inventions and efficiency recommendations, to save no less than R180 million in the course of this five-year plan period.

In general construction and the construction industry itself, we should derive an economic effect of R1.7 billion during this five-year plan period by taking measures related to new equipment and techniques and should be able to reduce our numbers of workers by 75,000; the corresponding figures for 1987 should be R312 million and 16,000 workers. With this goal in mind, we have decided to manufacture and promote 226 prototypes of new and efficient units of construction equipment, which is 2 percent above the plan, and which includes 45 such prototypes in 1987; to increase the share of prefabricated buildings and structures in the overall volume of construction and installation jobs to 30 percent, which is an increase of 17 percent for this figure for 1987; to construct no less than 60 percent of our buildings and structures of cast in situ ferroconcrete, using state-of-the-art machines to

feed the concrete; to increase the share of large-panel, prefabricated room unit and large-module housing construction by 1990 to 80 percent according to plan.

Along with this, in 1987 we plan to put into operation installations which will screen out no less than 5 million t of ash-and-clinker waste at USSR Minenergo power stations. This waste includes up to 3 million t of ash, and the figures for 1987 are, respectively, 650 and 550 million t.

By using the realization of the integrated goal-oriented program for cutting back on manual labor as a starting point, we plan during the 12th Five-Year Plan period to curtail manual labor in power engineering, the construction industry and the building trades by 6.8, 5.2 and 8.8 percent by 1990. To do so, we intend to increase the production of small-scale mechanization equipment 1.5-fold compared to 1985 and raise the level of manufacture of this equipment up to a total of R89 million in 1990.

We have taken on obligations to radically improve the quality of our output and the jobs we carry out in strict accordance with the requirements as set forth in the technical specifications and norms, for which we plan, starting in 1987, to carry out departmental acceptance of output at 200 machine building and construction industry enterprises and to set up departmental quality control of construction and installation jobs at 250 of the sector's construction projects.

In order to improve the manner in which our present plant capacities are used, we intend to change them over in 1987 to 2- and 3-shift working schedules, to increase the shift index for basic production up to 1.8.

Along with seeing that the yearly plans for the construction industry's capital construction projects are fulfilled ahead of schedule, we need to achieve no less than a 20 percent overall increase in this industry's output by the end of the five-year plan period by reequipping and renovating the sector's enterprises.

In order to accelerate the turnover of general-purpose railcars, we have taken up the obligation to cut down on railcar detention time at the sector's enterprises and construction projects by 0.1 hours compared to their actual detention time in 1986, which will free 2,000 cars for reloading with national economic cargoes. We plan use personnel from the ministry's enterprises and organizations to overhaul some 3,000 general-purpose railcars.

Every labor collective as a whole and each worker and specialist in particular is called upon to take an active part in carrying out the strategic course as delineated by the party towards accelerating social and economic growth, switching the economy over to the intensive growth track, and extending democratic principles to take in the management of the national economy.

We need to multiply our efforts to improve the organizational and economic mechanism by which associations, enterprises and organizations are managed under the new management system; we plan to complete the development and introduction of a general scheme for managing the sector, having reduced the

number of units managed at the primary link which will derive an economic effect of no less than R23 million per year by reducing the management staff's administrative maintenance costs.

Provision has been made for working up the necessary methodological documents, and to begin changing construction and installation organizations, and construction industry and machine-building industry organizations and enterprises over to self financing and full cost accounting. This will also be done on an experimental basis with the Kostroma, Bashkiria and Kiev power systems.

The effort to certify and rationalize workplaces in power engineering enterprises ought to be completed in 1987. On this basis, it has been suggested that we raise the level of automation and mechanization in our power stations, networks and repair enterprises. This will free 2.9 million persons and derive an economic effect of R5.5 million.

The anniversary year will see no less than 71 percent of our industrial production personnel organized to work in brigades. In 1990 this figure ought to stand at 80 percent. This year, we plan to change no less than 17 percent of those workers who repair power station and network equipment over to the brigade contract. They will be paid by the lump wage payment system. By 1990 this figure will include 30 percent of all repair workers.

During the course of the five-year plan period no less than 61 percent of all construction and installation work will be carried out by the brigade contract method. This includes 22 percent by the integral-process flow-type production method, and of these, some 51 and 16 percent respectively will be changed over during 1987. During the anniversary year, we intend to change 30 percent of our construction and installation organizations over to the collective contract.

The paramount conditions for successfully fulfilling the plans for the sector's economic and social development consist in boosting our workers' labor and political activity, strengthening order and discipline and raising the skill levels of workers and engineering and technical personnel. During this five-year plan period we intend, in particular, to retrain and improve the skills and occupational craftsmanship of no less than 2.4 million workers in our educational system and in this ministry's enterprises. This includes 475,000 personnel this year. We also plan to reduce the labor-force turnover by 5 percent this year in our sectorial enterprises and at our construction projects, to reduce losses of construction worktime by no less than 20 percent and to organize and begin certifying directors and specialists in our enterprises and organizations.

We have made provision to activate occupational orientation work for the students in the schools we sponsor, and to bring them into socially useful work. To this end, we plan to set up no less than 12,000 workplaces in 1987 in our power-production enterprises, construction projects and construction industry plants for these students, and to have 64,000 workplaces set up for them by the end of the five-year plan period. The schools have been helped in being brought up to strength with skilled labor education specialists.

We still have to solve major problems related to our collectives' social development. In adhering by every means possible to the Party's policy of improving the well-being of the people, we need to show some concern for the individual man, and to take persistent and consistent steps to improve the social and domestic conditions of our power industry workers and construction workers. With this goal in mind, we should act vigorously to create the conditions needed to provide the families of our sector's workers with single family well-planned housing by the year 2000.

Taking into account additional allocations of assets, we have provided for making housing amounting to a total area of 12.5 million square m available during the 12th Five-Year Plan period, of which 2,086,000 square m will be ready in 1987, and 100,000 square m of which will be above the plan. Construction of housing by region, and construction of other social and domestic facilities is distributed in the following manner:

	12th 5-Yr Plan	1987
Total housing area, m.		
a. Kansk-Achinsk Power-Production Complex	625	125
b. Ekibastuz Power-Production Complex	429.6	94.0
West Siberia Oil and Gas Complex	1362	225.4
a. Far East Regions	1326	222
Preschools, in thousands	70	8.31
Hospitals, in thousands of beds	3.77	.34
Polyclinics, in thousands of visits per shift period	7.6	2.05
General education schools, thousands of places	16.23	7.43
Clubs, thousands of places	3.9	--

Each of the sector's workers needs to work off no less than 4 days per year without pay on residential construction and other social welfare projects.

By implementing the measures set forth in the Zdorovye integrated health program, we intend to reduce the incidence of illness in the sector by 15 percent and to improve working conditions during the five-year plan period for no less than 200,000 workers, including 43,000 women. For 1987, these figures stand at no less than 47,500 and 11,200 persons respectively.

Before the end of the five-year plan period, we have to raise subsidiary plot production from 7,500 to 38,500 t of meat, and from 2,500 to 10,000 t of fish.

This year we plan to sell R68 million more food and industrial goods than were sold in 1986 and to increase the volume of sales of paid services to the population by no less than 2.5-fold before the end of the five-year plan period, thus increasing it to R310,400.



Soviet power workers are putting their creative energy, know-how and experience into meeting plan targets and socialist obligations successfully, greeting the 70th Anniversary of the Great October honorably, and making a worthy contribution toward realizing the historical decisions of the 27th Party Congress and the January 1987 CPSU Central Committee Plenum.

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## PRIVATE, COOPERATIVE CAB SERVICES VIEWED

Moscow NEDELYA in Russian No 18, 4-10 May 87 p 12

[Unattributed article: "Noncheckered Taxis"; first paragraph NEDELYA introduction; capitalized passages published in bold face in the original]

[Text] History has not retained the names of the drivers who first responded to the request "Taxi!" and opened the doors of their cars to unknown passengers, thus making up for the shortage of taxi service. Time passed and the shortage remained as before, and a flow of "nontaxi drivers" moved to assist the people who were "in a hurry" and "late." Among them were both "shady dealers" in cars with state license plates and car owners in their own Zhigulis and Moskviches. But for some reason we have placed in the same category those who use state gasoline to their own advantage and those who have bought their own gasoline like their own car, but work as taxi drivers only in their free time from their main jobs. And all of them were lumped together into the category of people who want illegitimate earnings. But all this has been brought to a stop: from now on those who wish to transport passengers in their own vehicles have been given the right to do this. They can join cooperatives, conclude agreements for transportation work or, if they purchase a license, they can do this individually. Experiments have been started and "private taxis" have appeared on the streets of Groznyy, Riga, Baku, Leningrad, Uralsk, Omsk, Tashkent and other cities. We decided to see how these experiments are doing and what problems the participants have encountered.

We began our inspection, of course, in Groznyy. But here is why: the capital of the Chechen-Ingush ASSR was the first to decide to officially assign car owners the role of taxi assistants. We called the editorial office of the newspaper GROZNENSKIY RABOCHIY.

The phone was answered by the CHIEF OF THE DEPARTMENT FOR SOVIET CONSTRUCTION, GENNADIY LEVIN:

You evidently know that none of this was easy for us. More than a year ago the city rejected the idea of using private automobiles for transporting passengers. The gorispolkom instructed the VDOAM [All-Russian Voluntary Society of Motorists] to select the most experienced motorists for the role of "taxi drivers" and to take the experiment under its wing. The project was

started but soon a "red light" appeared before the private taxi drivers. It was lit by the financial agencies of the autonomous republic. The reason was "transportation of passengers in private cars is a prohibited business." But the rumor of the Groznyy experiment spread rapidly and the practice that was "stamped out" here began to develop in other places.

BUT STILL DID IT NOT RETURN TO GROZNY?

Yes, at the beginning of this year 40 private car owners stenciled the word "Taxi" on their front window. And the experiment was resumed under the following conditions. Anyone included in it (they could work no more than 4 hours a day) had to pay for the right to enter the line and for a license, and plus they had to pay the dispatcher fees. It ended up to be about 6 rubles a day. And the gasoline, repair and wear and tear on the vehicles were at their own expense. The passengers checked the speedometer, and it cost 20 kopecks per kilometer and the same amount for the initial cost.

BUT WHAT WAS THE ADVANTAGE FOR THE "TAXI DRIVER" WITH THESE "DEDUCTIONS"?

At first it was advantageous. A car owner earned up to 15 rubles a day, he covered his expenses and he had an income. But it became clear that the advantage was quite relative. This kind of organization of the operation did not take into account the changeability of the income, while the expenditures were unvarying. And why was the right to transport passengers in Grozny given only to members of the VDOAM? This stands in contradiction to the law. This right should be given to anyone who has a motor vehicle in good repair, sufficient driving experience, and normal health. Finally, a person who has decided to help us solve the taxi problem should see in this more than just the money: he is working for all of us. As they say, the rubber on the tires wears down and the engine roars. This means that the driver should be given certain advantages in repair, acquisition of spare parts, tires and so forth. I agree with the head of the Division for Transportation and Communications of the Groznyy Gorispolkom, I. Sarkisyan, who thinks that it is necessary to have cooperatives of motor vehicle owners who have decided to occupy their free time working as taxi drivers: then it will be easier to solve many problems.

In Sverdlovsk they are also in favor of a cooperative, A CORRESPONDENT OF THE NEWSPAPER URALSKIY RABOCHIY, SERGEY PLOTNIKOV, and enters the discussion. Everything had been done to organize it: they had developed a draft of the regulations which discussed having their own repair base, one-time, weekly and 10-day coupons for travel and many other things that would be useful for the motor vehicle driver with initiative. And immediately 35 people were found. But the oblispolkom would not let them have the cooperative. They decided to assign those who wished to engage in passenger transportation to the Sverdgorprokatraznoby Association on a contractual basis....

A STRANGE NAME FOR A TRANSPORTATION ORGANIZATION. WHAT DOES IT MEAN?

It designates a firm that renders various consumer services. For simplicity it is still called "Bytovka." Right after the ispolkom decision, the work clearly began to die out: there were about 150 car owners at the organizational meeting, but only 13 agreed to work under the agreement.

## WHY WAS THAT?

Judge for yourself--they had to give the association 60 rubles a month each and received no assistance from it. The commitments of "Bytovka" could be reduced to 3 points: "To familiarize them with the rules...," "To provide instruction...," and "To provide the necessary insignia...," that is, two signs with the inscription "Consumer Service Taxi."

AND BESIDES THE 13 VOLUNTEERS, IS ANYBODY ELSE STILL HELPING IN TRANSPORTING PASSENGERS?

Yes. A couple of days ago, for example, I rode with Viktor Lagutenko. He has his own Zhiguli and earns money with it occasionally. He usually works at night while resting after his main job. He charges the taxi fare for a trip. Incidentally, he has neither a license nor registration certificate. I was of course interested in the "paper" that gives him permission to drive. Viktor answered reasonably: "A couple of months ago the ispolkom of the oblast soviet called for owners of private transportation to participate actively in transporting people and cargo. They have not rescinded this appeal."

AND IF THEY MAKE YOU EITHER GET A LICENSE OR JOIN "BYTOVKA"?

I asked Lagutenko about this. And I told him that the license would cost 550 rubles per year. "It would be necessary to think about it and weigh the advantages," he answered. "But I certainly would not join 'Bytovka'...."

IN THE CITY OF DMITROVA NEAR MOSCOW, AS WE LEARNED, THEY ALSO BEGAN TO APPEAL TO PRIVATE CAR OWNERS. BUT UNLIKE SVERDLOVSK, HERE THEY PAID ATTENTION TO THE PEOPLE WHO RESPONDED. LET US LOOK AT THE CONVERSATION OF NEDELYA CORRESPONDENT SVETLANA BULASHOVA, WHO HAS JUST RETURNED FROM DMITROVA.

This is not a large city but when in February the rayon newspaper published an offer to owners of private automobiles to work as taxi drivers, 200 people responded. The city VDOAM organization selected 12 of them. Not enough? But they took into account the length of experience of the driver, how "clean" his driving record was, and the condition of his car. They set the cost of the license: for an hour of "taxi" work they had to pay 60 kopecks each. The condition applied for up to 4 hours in line on an ordinary day and up to 8 hours on a day off. The licenses were issued for a month, and when the time period expired all of them wanted to renew it. The average earnings during this time were 150 rubles. But that was not all. The city authorities gave the "taxi drivers" driving Zhigulis the right to automotive services without waiting in line. Those who had Moskviches or Volgas were "assigned" to the local automotive enterprise, where for the appropriate payment they can have their cars repaired, wash them and so forth.

YOU MEAN THAT IN DMITROVA THERE ARE NO PROBLEMS?

No, there are problems. For example, it seemed strange to me that here they had already established a quota for private "taxis"--30-35 vehicles. Otherwise they would be in competition with state taxis. And if there were



qualified applicants for 40 or 50? Refuse them? One cannot support an initiative with one hand and restrict it with the other....

NOW THE FLOOR GOES TO AN IZVESTIYA CORRESPONDENT IN GORKIY, ANATOLIYA YERSHOVA. HOW DID YOU HANDLE PRIVATE PASSENGER TRANSPORTATION?

The experiment began here on 1 April. Therefore the Gorkiy residents could take it as a joke, but not a very funny one. What difference do 13 private cars make among taxis for a city of 1.5 million? A drop in the ocean, and there are no others who want to do this. The whole problem is that the gorispolkom has treated this kind of individual labor activity as a troublesome and thankless task. Even the decision of this same gorispolkom, according to which the chief of the production housing-repair administration, Comrade Serikov, was supposed to have provided premises for the dispatcher and mechanic, was not fulfilled.

SO THE RESIDENTS OF GORKIY HAVE NOT YET HAD A CHANCE TO SEE HOW ATTRACTIVE THE EXPERIMENT IS.

And the taxi drivers were able to recognize their competitors in a moment. For example, when the pensioner N. Tsaplev appeared at the taxi stand in his Volga with his license in his pocket, they simply threatened to slash his tires. Now, of course, he avoids the taxi stand. But as before in the train stations and airport the "shady dealers" in state vehicles feel free and easy.

And also in Tallinn the appearance of the first "private taxis" caused a loud reaction from the professionals, and this did not pass without a threat. This was added to the conversation by the IZVESTIYA CORRESPONDENT FOR ESTONIA, GRANT GUKOSOV. But the private car owners held their ground and now 180 people have concluded agreements with the Ekspress Consumer Service Combines and they enter the taxi lines.

HOW MUCH MUST THEY GIVE THE COMBINE?

Forty rubles a month. Taking into account expenses for gasoline, service, wear and tear and other expenditures of earnings (if the vehicle has been documented for the half of the rate) it is equal to approximately 100 rubles a month. After the capital of the republic Tartu was next to establish the contractual form--17 motor vehicle operators began to cooperate with the Yukhendus Consumer Service Combine. Incidentally, during the first quarter they brought the combine almost 12,000 rubles. So everyone came off the winner. And above all, of course, the passengers.

AND DID THE REGULAR TAXI DRIVERS PUT UP WITH THIS?

Some of them did. Some of them decided to leave--after all, that is easier than to work hard.

YOU MEAN THAT IN TALLINN THE CONSUMER SERVICE AGREEMENT WAS JUSTIFIED. BUT NOW THAT THE ITD LAW HAS GONE INTO EFFECT AND THE COST OF A LICENSE HAS BEEN SET, DOES THIS NOT WEAKEN THE ATTRACTION TO THIS KIND OF COOPERATION? PERHAPS MANY PEOPLE WOULD PREFER TO TAKE OUT A LICENSE AND BECOME INDEPENDENT?

I do not think so. In any case, those who are already working with Ekspress or Yukhendus consider this to be the optimal variant.

In Tashkent many people still consider cooperatives to be the optimal form--AN IZVESTIYA CORRESPONDENT FROM THE CAPITAL OF UZBEKISTAN, GEORGIY DIMOV, TAKES THE FLOOR. There is reason for this. The express cooperative already has 450 people and its dispatcher service takes orders for leasing vehicles or, for example, for providing service for weddings. Incidentally, there are people in favor of licenses. But I would like to tell NEDELYA readers about all this in a separate article.

WELL, WE WILL WAIT FOR YOUR DISCUSSION. BUT NOW LET US TRY TO SUM UP THE RESULTS.

AND SO WE HAVE DEFINED THREE APPROACHES TO "PRIVATE TRANSPORTATION": COOPERATIVE, WORK UNDER AN AGREEMENT, AND THE INDIVIDUAL WORK OF LICENSE HOLDERS. WITH NORMAL ORGANIZATION THE COOPERATIVE CAN OFFER MOTORISTS MANY ADVANTAGES--PRIVILEGES IN TECHNICAL SERVICING AND REPAIR OF VEHICLES AS WELL AS OF PROVIDING GASOLINE AND IT CAN GUARANTEE ORDERS RECEIVED BY THE DISPATCHER SERVICE. CERTAIN GUARANTEES ARE ALSO PROVIDED BY THE AGREEMENT WITH CONSUMER SERVICES (IF, OF COURSE, IT IS MORE SERIOUS THAN IN SVERDLOVSK). BUT INDIVIDUAL WORK WITH A LICENSE OFFERS MORE INDEPENDENCE AND FREEDOM IN SELECTING THE TIME AND CONDITIONS FOR "TAXI" WORK. BUT THE COST OF A LICENSE IN THE RSFSR AND SEVERAL OTHER REPUBLICS--560 RUBLES--MIGHT SEEM TOO HIGH TO MANY PEOPLE. BUT IN MOSCOW, LENINGRAD, OR, SAY, KIEV AND OTHER OF THE LARGEST CITIES, MOTORISTS WHO HAVE TAKEN OUT A LICENSE, EVEN CONSIDERING ALL THE OTHER EXPENDITURES, CAN MAKE MORE THAN ENOUGH TO PAY FOR THEM. BUT IN SMALLER CITIES THIS IS HARDLY THE CASE. TO BE SURE, KRAY AND OBLAST SOVIETS HAVE A RIGHT TO REDUCE THE COST OF A LICENSE BY 30 PERCENT. THIS MEANS IT IS A MATTER OF HOW RAPIDLY THEY EVALUATE THE SITUATION AND HOW INTERESTED THEY ARE IN SOLVING THE PROBLEM OF A "PRIVATE TAXI." ANOTHER THING IS NOT ALTOGETHER CLEAR. WHAT HAPPENS TO THE PERSON WHO WANTS TO BE A "TAXI DRIVER" NOT FOR A YEAR OR EVEN FOR A MONTH BUT, SAY, A COUPLE OF WEEKS, IN ORDER TO EARN A LITTLE MONEY FOR A VACATION OR TO BUY SOMETHING? OR AN ENGINEER, WORKER OR EMPLOYEE WHO WANTS TO WORK AN HOUR OR TWO EACH EVENING PERIODICALLY? SHOULD THEY GET A LICENSE? THERE ARE NO PROVISIONS FOR ONE THAT IS A LITTLE MORE EXPENSIVE BUT COSTS LESS THAN FOR A MONTH. IN SOME PLACES THEY SUGGEST TRYING COUPONS FOR THE TRIPS--ONE-TIME, WEEKLY OR EVERY 10 DAYS. IN A WORD, THE SEARCH FOR VARIANTS CONTINUES.

AND I WISH TO SAY ONE MORE THING ABOUT THIS. WE NEED NOT FEAR THAT THE COMPETITION WILL MAKE THE "OFFENDED" TAXI DRIVERS GO TO OTHER WORK. THE ONES WHO LEAVE WILL BE THE SELF-SEEKERS WHO SPEND ALL THEIR TIME "IN THE PARK." BUT THE REAL TAXI DRIVERS WILL STAY AND WILL WORK NORMALLY. THEY WILL WORK ALONG WITH THEIR "COMPETITORS" FOR OUR COMMON GOOD.

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## PREDICTING URBANIZATION, SETTLEMENT PROBLEMS EXPLAINED

Moscow EKONOMIKA I MATEMATICHESKIYE METODY Vol 23, May-Jun 87 pp 445-455

[Article by Ye.Yu.Fayerman and I.A. Portyanskiy under the "Territorial Planning and Control" rubric: "Systemic Forecasting of Urban Settlement"; numbers in brackets refer to bibliography]

[Text] The contemporary stage of development of the productive forces is logically associated with a radical enhancement of the role of social factors within the entire complex which comprises social progress. These factors are stimulating economic development and at the same time place certain limitations on its growth rate.

In this connection developing the settlement system on a planned basis becomes very important. A settlement process which integrates conditions for labor, recreation and services to the populace becomes the leading, key factor in the rationalization of territorial organization of society. Therefore, a special role is attributed to raising the scientific level of forecasts and plans for regional and urban development, which requires an appropriate degree of sophistication of methodology and methods of making planning decisions.

The principal methodological problem is associated with the influence of the scientific-technical revolution, and has led to significant intensification and complexity in the mutual dependency among economic, social, ecological, demographic and other urban structures. In the process of their interaction a great number of non-linear inverse relationships spring up, and a multitude of external, linked effects. Changes in the operation of one element or a single functional subsystem of a city leads, as a rule, to unforeseen consequences in the development of other elements, subsystems and the entire city as a whole. Ordinarily it is possible to reliably predict only the direct and most immediate consequences of measures, and long-range and medium-range consequences fall outside the field of view of the research scientists, even though it is precisely these that may turn out to be most serious. For example, in the hopes of accelerating the growth of a city its economic base is actively developed; new jobs are created, and at first this truly promotes an influx of population. However, these very same measures subsequently lead to a worsening in the ecological situation, and an additional burden on the urban infrastructure--which already is causing an

increase in population outflow. Here it is fitting to recall the words of Engels, spoken with respect to the victory of mankind over nature: "At first each of these victories produces, it is true, the consequences which we were counting on; but in the second and third instances entirely different, unforeseen consequences occur which very often destroy the significance of the first" [Collected Works of Marx and Engels, Vol 20, pp 495-496]. With the development of cities and the settlement system and with the intensification and growing complexity of the mutual dependencies among their subsystems, the quantity and scale of such "other, unforeseen" consequences increase significantly.

It is no exaggeration to say that it is time to change the research programs for urban development, which in turn demands solution of the methodological problems which have arisen at the same time. The existing program of planning, scientific and designing activities emerged in the 1920's and 30's, a period in which our country was undergoing industrialization and had significant reserves of labor resources; a period in which it was considered (and altogether properly) that, for example, the size of the population of a city or a rayon was a quantity derivative of the number of jobs in them in the material production sector. The Instruction of the RSFSR People's Commissariat on Municipal Services for determining the size of urban population stated that, "For the long-term period the population size of planned cities shall be determined by the number of persons needed to carry out economic and cultural-domestic tasks adopted in the plan for development of the national economy" [1. p 21]. The source of urban development was thus found not in the social-urban construction sphere, but in the economic; feedback was unsophisticated, and it was entirely possible to disregard it. Now the situation has changed radically. The approach to urban planning on the basis of assigned population size has been relegated to the category of the impolitic, since the very size of the population is a derivative of the planning decisions which are now being realized. Fundamental changes are taking place in the nature of the interaction among the basic structures of the settlement system, which requires a corresponding re-examination of both the content as well as the methodological aspects of the planning, scientific and design activities.

One of the principal problems is providing for coordinated forecasting and planning of economic, social, ecological parameters. It is well known that plans for disposition of productive forces, settlements, environmental protection, and demographic forecasts are worked out independently today. Informational ties among them are basically of a directive nature, and they are direct, without an established sequence of reciprocal influence.

As a result, attempts to combine the results derived in various projects actually take the form of fragmentary, oversimplified descriptions based on a mechanical combination of data of various kinds. Clearly, such a systematization and summation (even the most complete) of information is not capable of overcoming the systemic "barrier of complexity," and cannot lead to an adequate conception of a city as an integral organism, and consequently is not a reliable basis for long-term forecasting and planning of urban development. What is primarily needed now is comprehensive research on settlements at the junctures of the economics, geography, sociology,



demography, and ecology of town-planning. simulation modeling plays a large role in solving this problem. Comprehensive in its very essence, it permits experimental investigation of the processes of urban development and the settlement system, "playing out" various strategies for managing their development, and analysis of the possible consequences of their realization. Available experience in the employment of simulation models in the programmed planning of settlement systems [2] also provides convincing evidence of the expedience of widely introducing them in planning, scientific and design activities.

Another important problem in forecasting urban development is associated with a currently widespread methodological defect. We are referring to autonomous forecasting for the development of individual cities, which is not in phase with forecasts for overall development at higher levels in the hierarchy. Balancing which is carried out within the context of the plans and designs for regional planning of the future population size of individual cities in terms of the overall future size of the urban population of a group of administrative regions or even oblasts does not change the essential nature of the matter, since these systems are subject to the influence of a great number of external factors, and do not contain extended periods of stable, evolutionary development. Therefore, forecasts of the size of the urban population of the oblasts themselves require balancing at higher levels--which, as a rule, is not being done.

As a result it turns out that no matter how well-founded and convincing the autonomous forecasts for the population size of individual cities appear; no matter how comprehensive and complete the list of factors considered in the process of forecasting; and no matter how sophisticated the methods employed in the process--the result is unsatisfactory in any event.

Experience in working on the "General Settlement Plan on the Territory of the USSR," completed in 1983, showed that the sum of the autonomous forecasts for future urban population size in the cities of the USSR turned out to be 18-20 percent higher than the forecast for the overall size of the urban population of the country. Moreover, this divergence increases along with the increase in the period of the forecast. It becomes obvious that balancing by individual cities must commence with the overall predicted size of the urban population of the country as a whole, in accordance with the parameter with the most steady and stable dynamic.

[References 3 and 4] illustrate the basis for the method of systemic forecasting which permits adjusting autonomous forecasts to make them compatible with the forecast at the higher level of the hierarchy. At the same time the quality and reliability of forecasting is increased, since the development trends for the entire system of urban settlement as a whole is introduced to the dynamic of development of each specific city, which acts as a check on exaggerated individual forecasts or an accelerator for excessively restrained forecasts. Estimates for future growth are becoming essentially systemic, and are fleshed out with supplemental information as forecasts at the various levels in the hierarchy are correlated.

It is important to stress that whereas autonomous forecasts for urban development are of an extrapolated nature, after adjustment for balance they cease to be simply an extrapolation of empirically-revealed individual trends. Likewise, all special-purpose autonomous forecasts (associated, for example, with limitation of growth of the largest cities or with accelerated development of small and medium cities) after balancing are altered significantly, since now the overall inertial trends of the aggregate forecast are determined as well. This makes special-purpose forecasting more realistic, automatically "softening" the radical forecasts which had been disseminated, associated both with poorly-founded resolutions to halt the growth of the largest cities, and with excessive optimism with respect to the possibilities for growth of the small and medium cities. In the process of balancing the autonomous forecasts, it seems as if the relative scales of urban development are assigned and their absolute size determined by the overall forecast of the size of the country's urban population. The latter circumstance to a certain extent alleviates the development of local forecasts, since it specifically removes the severe demands on the length of the retrospective period in the process of extrapolational forecasting [3].

Set forth below are the basic results of systemic forecasting of the development of a system of settlements carried out on a cross-section of cities of various rankings. Their most important peculiarity is the complete agreement of autonomous forecasts with the predicted overall size of urban population in the USSR.

Another peculiarity is the varying nature of forecasting which permits depicting and contrasting alternative strategies for developing a system of settlements, and to a certain extent bring about their synthesis. The systemic nature which lies at the basis of this analysis of forecasts permits significantly increasing the realism of the strategies under examination.

The overall increase in urban population proposed in accordance with the socio-economic and demographic situation in the forthcoming period for the country as a whole amounts to a little more than 60 percent of the growth actually observed for a retrospective period of identical length. At the same time regional differences turn out to be extremely significant [5].

In order to formulate a given strategy, it is first of all expedient to formulate a settlement policy, the realization of which it would be. The following can serve as general conceptions of such a policy: (a) maintaining the proportions of increase of cities and the system of settlements of various rankings which have taken shape; (b) activating the suburbanization process; that is, predominantly developing the outer zones of major cities and urban agglomerations; (c) priority development of promising urban centers in all regions, establishing a supporting framework for regional capitals, and activating the growth of industrial centers in new territorial-industrial complexes [TIC]; and (d) stepping up agro-industrial integration by means of developing a system of small and medium-sized towns as organizational and service centers in predominantly agricultural rayons and oblasts.

It will further be necessary to work out a methodology for comparison of the social, economic and ecological consequences of implementing alternative

policies, analysis of their positive and negative aspects, and their conformity to the regional conditions which have evolved. Such comparison is based primarily on qualitative and quantitative measurements of the extent to which the functional goals of the programs supporting each of the alternatives have been achieved.

A complex of criteria reflecting the degree of achievement of social, economic and ecological goals has been worked out for analysis and selection of alternatives for improving settlements.

Insofar as the formulation of the Group System of Populated Places (GSPP) is the basic method for achieving social goals, the main criteria for this group of goals are: the number of major GSPP, and the proportion of population living in them (at the end of the accounting period). The social criteria can also be formulated on the basis of the construction and standardization of special-purpose functions of the preference for consumer, goods and services in the infrastructure, differentiated on a territorial and settlement cross-section (by groups of settlements) [6]. The considered significance of the socio-cultural potential of the populace of the urban clusters, expressed on a point scale, can also be used as a palliative. This permits consideration of the possibility of access to them by the population of not only the centers but also the outer zones of these urban systems, which are leaders in the scientific-technical and socio-economic respects.

Among the basic economic criteria are the indicators designated for analysis of the correspondence of the future structure of populated places to the tasks of intensification of social production and increasing its effectiveness. The production functions of industrial and non-industrial activities in cities of various sizes and location can be used for this [7]. It would also be useful to contrast the data on labor productivity and the yield on capital investment in cities of various rankings [8].

The cost of housing and civil construction is determined on the basis of integrated indicators for expenditures in cities of various sizes and national-economic profile, taking into consideration regional differences and differentiated normatives for providing living space [9] and socio-cultural-domestic (SCD) services.

Ecological criteria can be set up on the basis of integration of indicators on the prospective ecological situation in the city system of the USSR. At the same time the value of such indicators must reflect the degree to which the levels of pollution approach the maximum allowable significance. The given indicator also determines the expenditures for protection of the environment, necessary for putting the ecological situation into the proper condition.

Apparently it would be expedient to make use of both the specific settlement goals and the quantitative measurements of their criteria. Pertaining to this are the indicators which reflect the degree of success in resolving problems of limiting the population density of the major cities and the development of small and medium-sized towns. In each group their number and proportion of population indicate the degree of fulfillment of the indicated goals as well.

Realization of the most important national economic tasks--maximum use of the economic and socio-cultural potential of major cities and the largest cities--is reflected in the size of the population growth in the outer zones, in the urban clusters which have taken shape on their bases. The following criteria are also operating in this same direction--namely, the number of cities with population of more than 100,000 people at the start of the accounting period, which have lost it by the end of the accounting period.

The development of a supporting framework for settlement is being analyzed in terms of the number of cities reaching the 100,000 mark which are forming outside the limits of the existing town clusters, and in terms of the size of their population.

Conceptions of settlement policy can be adapted to both a general one for the country as a whole, and as a differentiated policy. For example, one can formulate various policies for the basic macro-zones: the Western (European part of the USSR), the Eastern (Siberia and the Far East) and the Southern (Central Asia and Kazakhstan). A more detailed differentiation is also possible.

Based on these policies, methods of systemic forecasting and comprehensive analyses of variants have been worked out: an inertial [inertsionnyy] forecast for development of the settlement system in the USSR on a cross-section of 1,000 urban centers; three general settlement strategies (I-III); and a strategy differentiated by macro-zone (IV).

Described below are the general characteristics of urban settlements in accordance with these strategies, as well as their comprehensive socio-economic, ecological and settlement characteristics.

The inertial variant was examined as the supporting, or basic variant of a forecast for development of the settlement system. Constancy [inertsionnost] is an important factor in formulating future settlement, the underestimation of which could significantly influence the reliability of special-purpose forecasts. Extrapolation of current development trends indicate that in the future a leading role will be played by the inertial processes of population concentration in the major and largest cities (with population over 250,000). On the whole the proportion of population dwelling in such cities can increase by more than 10 percent. The number of cities at the million mark and the proportion of population in them will significantly increase. These cities will enjoy more than two-thirds of all population growth in the major and largest cities.

Results of extrapolational forecasting provide convincing evidence that in questions of regulating urban growth one must not assume an "automatic" process of intensification, since the influx of population to the major and the largest cities will continue even without establishing new jobs in the material production sphere. The population influx is supported in particular by the increased needs of the nonindustrial branches, by the redistribution of labor resources among the cities in favor of the centers which generate STP [scientific-technical progress], and by other factors [10].



It is important to note that in connection with the exhaustion of the migrational resources of the rural areas, the other groups of cities (of less than 250,000 people) are deprived of the source which until recently had been replacing their losses in interurban migration. This above all explains the anticipated relative decline in the proportion of population in such cities. At the same time the number of large cities (of 100-250,000 people) and the size of the population in them continues to increase, although at relatively low rates as well. But for the group of the small and medium cities (less than 100,000 people) an absolute decline in the overall anticipated resident population will be characteristic.

The extrapolated forecast indicates the possibility of qualitative differentiation in growth rates of cities of varying size, and the appearance of many cities the population of which will be lower at the end of the accounting period than at the beginning. The overwhelming majority are situated in the Russian Federation, where the decline in overall growth rates of urban population is very significant, and the disparity in the quality of the urban environment among cities of varying sizes is especially great. Regional analysis confirms the accuracy of the connection between the number of cities losing population and the growth of the major cities, especially those in the 1,000,000 population class. Thus, the inertial growth of Moscow conditions the emergence of almost 30 percent of such cities in the RSFSR; the development of Leningrad, about 7.0 percent of such cities; the growth of cities in the 1,000,000-class in the Urals, 16 percent; and so on.

For the most part it is the small and medium cities which are losing population; but a significant number of the larger ones are turning up in this category as well. Regional analysis reveals that the majority of these are found in the Central Region, which once again supports the hypothesis expounded above.

The development of urban clusters in the extrapolated variant also follows the line of further population concentration in the majority of urban clusters which are formed on the base of cities with population of over 250,000. A characteristic of all such projects is an increase in the ratio of their population to the overall size of the country's urban population. At the same time a steady trend is shown toward maintaining the central type of development for urban clusters, in which the greater share of their population growth is absorbed by the central city. This is confirmed practically everywhere and is characteristic of urban clusters of all types, with outstripping growth rates for the population of the centers in comparison with their outer zones.\* As a result the proportion of the populace dwelling in the outer zones of the large and major urban clusters will be reduced by almost a factor of three. Moreover, this decline is especially noticeable in the European part of the USSR. The consequences of such a course of events are well-known. These are: high population density around the center city, intermingling of urban construction projects, worsening of the ecological situation, and so on. It is becoming clear that the processes of formation and development of urban clusters urgently require active, purposeful regulation, which would bring about the elimination or at least a significant reduction in the negative consequences while preserving the positive effects of the urban clusters. The results of the extrapolational forecast make the

search for an effective means for restructuring the inertial trends of development of the system of populated areas an urgent one. At the same time it is significant that under the influence of the STP there is an expanding aggregate of measures capable of actively influencing settlements. In addition to the traditional economic measures associated primarily with the redistribution of workplaces in the material production branches, at the present time measures directed toward development of the nonindustrial sphere, improving the ecological situation, improving the planning structure, and others, are taking a leading position. As a consequence, new and often more effective directions for transforming settlement and regulating its development are opening up. The increasing significance of special-purpose forecasts based on profound and thorough study of possible alternatives are connected with just such circumstances.

At the same time it is important to clearly bring out the fact that the dynamic of urban settlement, its structure, the relationship of populated places of various types, their size and national economic profile, is a function not so much of special settlement measures, as much as it is a function of socio-economic planning in toto. At the very same time, settlement policy which provides for the creation of the necessary spatial conditions for social production, the solution of the most important social and ecological problems, in turn is becoming a primary link in comprehensive control of regional socio-economic development.

Alternatives for settlement policies are based on the relative competitiveness of long-term national economic tasks: increasing the effectiveness of the use of aggregate economic, socio-cultural and scientific-informational potential; expansion of the basic sector [polosa] of economic activity and changes in the interregional proportions for distribution of labor resources in connection with the assimilation of the raw-material and energy resources of the eastern regions of the country; solving the food problem and eliminating the disproportions in the standard of living of the urban and rural populace; and intensifying the integration of agrarian and industrial types of activity. These tasks are to a significant degree interrelated. At the same time each of them, including the sphere of urban settlement, requires special measures as well.

The realization of these policies can be specified in the form of three alternative strategies.

Strategy I is directed toward priority support to the spatial conditions for intensification of social production by means of actively stimulating the development of the outer zones of large and major cities, in which practically the entire potential for scientific-technical progress is concentrated. Such a strategy promotes intensification of specialization and inter-branch cooperation of industry; concentration of the infrastructure; an increase in the urban cluster effect; and it provides significant economic and social results at the smallest cost and in the shortest period of time.

Strategy II is predominantly oriented toward establishing the town building prerequisites for the formation of new TIC's and industrial nodes, developing the centers in newly opened areas, and expanding the supporting framework of

regional capitals and urban centers beyond the limits of the basic band of settlement.

Strategy III proposes directing the basis resources toward solving the problems connected with deepening integration of urban and rural settlements, the convergence of the industrial and agrarian components of the national economic complex, moving enterprises for processing agricultural products to the places of their production, and increasing the level of services to the rural population. This can be achieved by means of developing a network of small and medium-sized cities as the centers of intra-oblast regions.

Let us examine the basic parameters in the structure of urban settlement which one should expect as a result of implementing these strategies.

Implementing intensification strategy I will introduce significant adjustments to the growth rate of all urban settlements located in the outer zones of the large and major cities and urban clusters independent of their size. Increasing the growth rate of these cities as well as the central cities of urban clusters with a population of 100-250,000 people at an average of 3.0-4.0 percent per year will be, as calculations show, an effective means of limiting the size of the cities in the 1,000,000 category. In the given variant, cities which will cross the 1,000,000 mark in the near future will include at least Alma-Ata, Volgograd, Rostov-na-Donu, Krasnoyarsk and Saratov. Population growth will decline in the cities now in the million category. As a result the proportion of population concentrated in this group will decline in comparison with the extrapolated variant by more than 5.0 percent. A similar situation exists in cities with population of 500,000-1,000,000. Realization of the given strategy will permit significantly reducing the influx of people to them, and if this is not depicted with sufficient clarity in numerical terms, then it is only because a number of the cities--Frunze, Riga, Voronezh and others--will remain in the 500,000-1,000,000 group. In the given variant the principal increase in urban population is concentrated in the group of cities with 250-500,000 persons. This comes about, first of all, as a result of accelerated growth in the cities which already fall into the given group; and secondly, because almost two-tenths of the cities with population of 100-250,000 people at the start of the forecast period will come under the given group. In its turn this latter group will also be supplemented by a significant "detachment" of cities of lesser size, which owing to accelerated growth of urban clusters will cross over to the next gradation; and so on. On the whole the significant number of crossovers "from the bottom up" among urban settlements situated in the lower part of the numerical hierarchy testify to the active stimulating influence of the given strategy on the development of small and medium-sized cities, which have favorable conditions for intensification of industrial and agrarian activities. This also explains the growth of the trend toward urban clusters--nearly one-fourth of the country's urban populace is found in the developed large major urban clusters. However, as distinguished from the extrapolated variant, here development follows on the zonal type, and the proportion of the population of cities in the outer zones of these urban clusters will increase by 4.0-5.0 percent.



At the same time the described trends have distinctly regional differentiation and on the largest scale will be characteristic of the European part of the USSR. In other macro-regions the inertial processes will change to a significantly lesser degree under the influence of the intensification strategy. The peculiar features of the system of urban settlements, the level of development of the urban clusters, and the nature of the industrial branch structure of the economic base of the cities in these macro-regions will noticeably dampen its constructive influence and socio-economic effect.

Realization of Strategy II is connected with the growth of potential urban clusters of all types by virtue of accelerating the development of the outer zone of the largest, major urban clusters and the centers of the large and medium-sized clusters. Additionally, expanding the basic area of economic activity presupposes analogous processes in the settlements, implemented in the expansion of the number and the increase in population density of autonomous cities located outside the limits of not only the urban clusters which have already been formed, but also potential clusters.

The overall increase in population in the large and medium-size potential urban clusters in comparison with the extrapolated variant amounts to about 2,000,000 people, and is spread about equally between the center and the periphery. Strategy II leads to significant reduction of the number of cities losing population and to the emergence of nearly 100 new autonomous cities in the 100,000 range, which is almost two times as much as in the extrapolated forecast, and testifies to the development and the strengthening of the supporting framework of the settlement. This strategy has the most radical influence on the restructuring of the system of populated places in Western and Eastern Siberia and the Far East--that is, where a relatively small number of urban communities falls under the priority category. One-fifth of the overall number of cities newly entering the 100,000 range will be in these regions, and here the number of cities losing population will be reduced to a minimum.

An excessive number of points of growth in other regions of the country will lead to frittering away of resources and on the whole approximates the extrapolational significance of the parameters of the system in terms of the number of major cities and the size of the population in them. Also relatively small are the changes at the very lowest ends of the hierarchy--the small cities and urban-type communities. Only in the groups with population of 50-100,000 and 100-250,000 people will the increase most closely conform to the scale. Detailed analysis of the changes taking place in specific cities indicates that implementing the given strategy will require a more prolonged period of time to achieve significant gains in the settlement structure or to achieve a corresponding socio-economic effect in comparison with Strategy I (See Table). In the period under examination many of these achievements are only planned achievements and take place for the most part within the established groups. However, in the more distant future one should also expect significant cross-overs between groups. Then improvements in the qualitative indicators of the strategy will also take place. In the period under examination frittering away capital investments, for the majority of the regions and for the country as a whole, for many criteria will lead to indicators worse than the extrapolation variant.



The parameters of the system of populated places stipulated by Strategy III are to a great extent similar to the preceding variant, although they are achieved by different means. Here preferential development is given to cities which are potential centers of medium and small GSPP's. The formation of such systems is a most important town-building means for intensification of the agrarian sector of the economy, and for the solution of a great number of social problems facing the rural area. Incidentally, inasmuch as the inertial growth rate of priority cities in the given strategy is as a rule not very high, and quite often even has a minus sign, the most radical achievements in the settlement structure should also be expected outside the bounds of the estimate period. Therefore the list of cities losing population remains rather large--and in comparison with the extrapolated forecast is not significantly declining. Undoubtedly this is also connected with the reduction in the high growth rates of cities in the 1,000,000 category, the number of which corresponds with the very same forecast; but the size of the population turns out to be somewhat lower. Nevertheless, one should note the already sufficiently defined trend in the period under examination for an increase in the number of small cities--the number of which, in spite of the numerous cross-overs to the medium category, nevertheless will increase by more than 150 items.

Just like the material set forth earlier, the present strategy has a distinctly regional orientation. In the republics of Central Asia and in Kazakhstan, and to a certain extent in the republics of the Transcaucasus its implementation will bring about much more serious gains in the republic systems of urban settlement than for the country as a whole. The absence of stagnating cities in these regions; the preservation of high rates of natural population growth; and an increase in its mobility and similar factors make the measures examined by strategy III the most effective means of restructuring the existing settlement system. It is namely in these regions that almost half of all the average GSPP [Group System of Populated Places] will fall.

Table: Relative Effectiveness of Strategies for Developing Settlement

Criterion	Extrapolated Forecast	Strategy			
		I	II	III	IV
Number of cities of 1 million or more	30	27	28	30	26
Number of cities losing population	186	106	108	151	92
Of that number, cities of 100,000 or more	28	25	29	23	22
Number of cities of 100,000 not part of urban clusters	53	55	92	70	64
Number of major GSPP*	-	8	4	4	10
Proportion of population in them, %	-	14.9	5.1	4.7	15.8
Number of medium GSPP	-	23	15	27	25
Proportion of population in them, %	-	6.9	4.7	8.0	7.9
Average weighted socio-cultural potential, in points	195.6	196.2	194.1	194.5	196.0
Average weighted ecological situation, in points	0.190	0.195	0.187	0.184	0.194
Average weighted index of labor productivity	1.07	1.12	1.04	1.03	1.12
Average weighted index of return on investment	1.15	1.18	1.12	1.12	1.17
Expenditures for environmental protection, billions of rubles	97.8	97.0	100.1	101.9	97.2
Expenditures for housing and civil construction, billions of rubles	319.1	312.7	309.7	311.8	306.5

\*In the inertial variant, the formation of GSPP is considered not to have taken place, inasmuch as it requires special-purpose city-building-settlement measures.

Analysis of the consequences of implementing the three general alternative strategies has disclosed their varying degree of influence on the settlement processes, depending upon regional conditions. Most noticeably changing the structure of populated places in the European portion of the USSR is Strategy I; in Siberia and the Far East, Strategy II; and in the southern republics of the country, Strategy III.

It is indicative that the regional-differentiated survey of strategies for developing settlement corresponds to the regional priority of basic long-term goals for socio-economic development. For the European part of the USSR, in which the country's main economic potential is concentrated, the most urgent task is intensification of the economy on the basis of effective use of this potential. In the Siberian-Far Eastern macroregion with its colossal fuel and raw material resources in barely-developed regions, the most urgent task is expanding the basic strip of economic activity and settlement. In Central Asia and Kazakhstan solving the problems of the agrarian sector, as well as the most complete use of labor resources which are primarily concentrated in the rural areas, are the principal problems. Thus, the differentiation of strategies is an important condition for establishing the necessary town planning prerequisites in solving the socio-economic problems of the forthcoming period. In this connection it will be expedient to work

out a differentiated Strategy IV. This strategy has been developed in such a manner that it will support conducting in each of the macroregions the most effective of a complex of measures, the influence of which follows the three preceding "pure" strategies. The quantitative parameters of these strategies accrue the most significant structural achievements characteristic of the previous three, sufficiently prominent for the country's settlement system as a whole.

For example, Strategy IV will ensure maximum restraint in the development of the major cities. As a result, the growth rate will increase significantly for a large group of cities of various sizes; the number of cross-overs from "bottom to top" will increase proportionately; and the proportion of the populace concentrated in the middle of the numerical hierarchy will increase. A certain decline in the proportion of the population of small towns and urban-type communities will be the result of the action of two factors. First, the factor of accelerated growth (and consequently, a shift to a higher category) in the portion possessing the most favorable conditions for development, being situated in the outer zones of the urban cluster or in regions of intensive agricultural development. Secondly, the preservation or even the intensification of inertial trends for "washing out" the population from the remaining portions of small urban communities, which is the logical result of concentration of resources at priority development projects.

The results of evaluating the consequences of implementing each of the strategies have been summed up in the table and testify on behalf of Strategy IV, which attributes great significance to the majority of the criteria employed, and in a number of instances (in terms of the number of GSPP formed and the proportion of population in them; savings in expenditures for housing and civil construction, and others) provides the maximum effect.

Experience in using the principles of systemic forecasting for regional and urban research confirms its theoretical value and practical significance. The transition from autonomous to systemic forecasting urban development has accurately identified the principal problem of developing settlements in the foreseeable future--the overall expected increase in urban population will be extremely limited by virtue of the demographic situation and will prove to be insufficient, within the limits of the existing forms of regulating urban growth, to provide proportional development of the entire system of urban settlements. At the very same time systemic modeling of various scenarios for urban development has helped define the most effective means for changing it. In the European part of the USSR this is principally stimulation of planned and regulated suburbanization, providing for balanced development of the nucleus and the outer zones of urban clusters by means of moving branches of enterprises from the center city to the populated points of the outer zone; accelerating the construction of housing in them; established a developed intra and interurban infrastructure, and the like. In Siberia and in the Far East--development and expansion of the system of large and major cities (supporting and multi-profile centers in the basic settlement zone, base central cities for opening up the North), is outstripping the development of the mainline transport infrastructure. In Kazakhstan and Central Asia--priority development of small and medium-sized cities in the agrarian regions by means of situating labor-intensive enterprises in them for local, light and

food industries; actively developing the sphere of services, training and retraining of cadres; and establishing a well-developed local transportation system.

\*For the last 15 years the average annual growth rate for the centers of urban clusters exceeded the growth rate for settlements in the outer zones by a factor of 1.2.

#### BIBLIOGRAPHY

1. Yevtikhiyev, I.I., "Technical-Economic Calculations in City Planning," Moscow and Leningrad, United Scientific-Technical Publishing House, 1936.
2. Portyanskiy, I.A., "Certain Formal Procedures In Specific Programmed Planning of Settlement Systems," EKONOMIKA I MATEMATICHESKIYE METODY, 1981, Vol XVII, Ed 5.
3. Fayerman, Ye.Yu., "Correlating Forecasts for Hierarchically-Organized Projects," EKONOMIKA I MATEMATICHESKIYE METODY, 1986, Vol XXII, Ed 5.
4. Fayerman, Ye.Yu. and Dzhangirov, D.A., "A Systemic Forecast for Growth of The Region's Population," NARODNOYE KHOZYAYSTVO AZERBAYDZHANA, 1981, No 8.
5. Listengurt, F.M. and Portyanskiy, I.A., "The Major City Under Conditions of Transition to an Intensive Economy, VOPROSY EKONOMIKI, 1985, No 1.
6. Fayerman, Ye.Yu., "The Criterion of the Optimal and Social Preferences," EKONOMIKA I MATEMATICHESKIYE METODY, 1980, Vol XVI, Ed 1.
7. Fayerman, Ye.Yu. and Golousova, S.V., "The Agglomerational Effect of Concentrating Industry in Cities and their Calculation in Correlating Plans for Situating Industry and Settlements in Regions," PROBLEMY SISTEMNOGO ANALIZA I MODELIROVANIYA RAZVITIYA GORODOV I SISTEM NASELENNYKH MEST, Moscow, VNIISI, 1982.
8. Ilin, I.A., "The Economy of Cities: Regional Aspects of Development," Moscow, NAUKA, 1982.
9. Lyubovnyy, V.Ya. and Shcheglov, V.A., "Methods for Improving Planning and Designing of Town Planning Decisions," POVYSHENIYE EFFEKTIVNOSTI GRADOSTROITELNYKH RESHENIY V USLOVIYAKH KOMPLEKSNOGO SOTSIALNO-EKONOMICHESKOGO RAZVITIYA GORODOV, Moscow, TsNIIPG, 1981.
10. Pchelintseyev, O.S. and Shatalin S.S., "The City in the System of Socio-Economic Development Management," SOTSIALNO-EKONOMICHESKIYE PROBLEMY SOVERSHENSTVOVANIYA KHOZYAYSTVENNOGO MEKHANIZMA, Ed 3, Moscow, VNIISI, 1982.

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END



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**DATE FILMED**

2 Oct., 1987